MODERN PACKAGING

MAY 1944

Is Postwar Planning Unpatriotic?

IF YOU'VE just come from seeing the movies of Marines fighting on Tarawa, or have just talked to a guy who's been in the fighting anywhere, the road ahead seems tough enough.

And thoughts about postwar planning seem out of place, even unpatriotic.

But wait a minute . . .

Someone planned what the Marines would do *after* they'd taken Tarawa; someone plans what any group of fighters will do next *after* they've taken *any* objective.

And this planning has to be done long before Tarawa or any other place is even attacked.

In such perspective, it makes lots of sense to plan *now* for what we're all going to do *after* the final objective has been won and peace comes.

Can we help you?

This is why we picture several postwar containers for probable products, at the bottom of this page. They are examples of postwar planning . . . intelligent projections of lessons, learned during this war, which have already been applied to the Peace to come.

In solving the war problems which led to these peacetime applications, the great laboratory facilities and technical skill of American Can Company played their appropriate part.

The increased experience, gained by solving the new problems we've had to meet since 1940, has placed us in even better position to help you with your postwar packaging problems. You need only write or call us.

CANCO

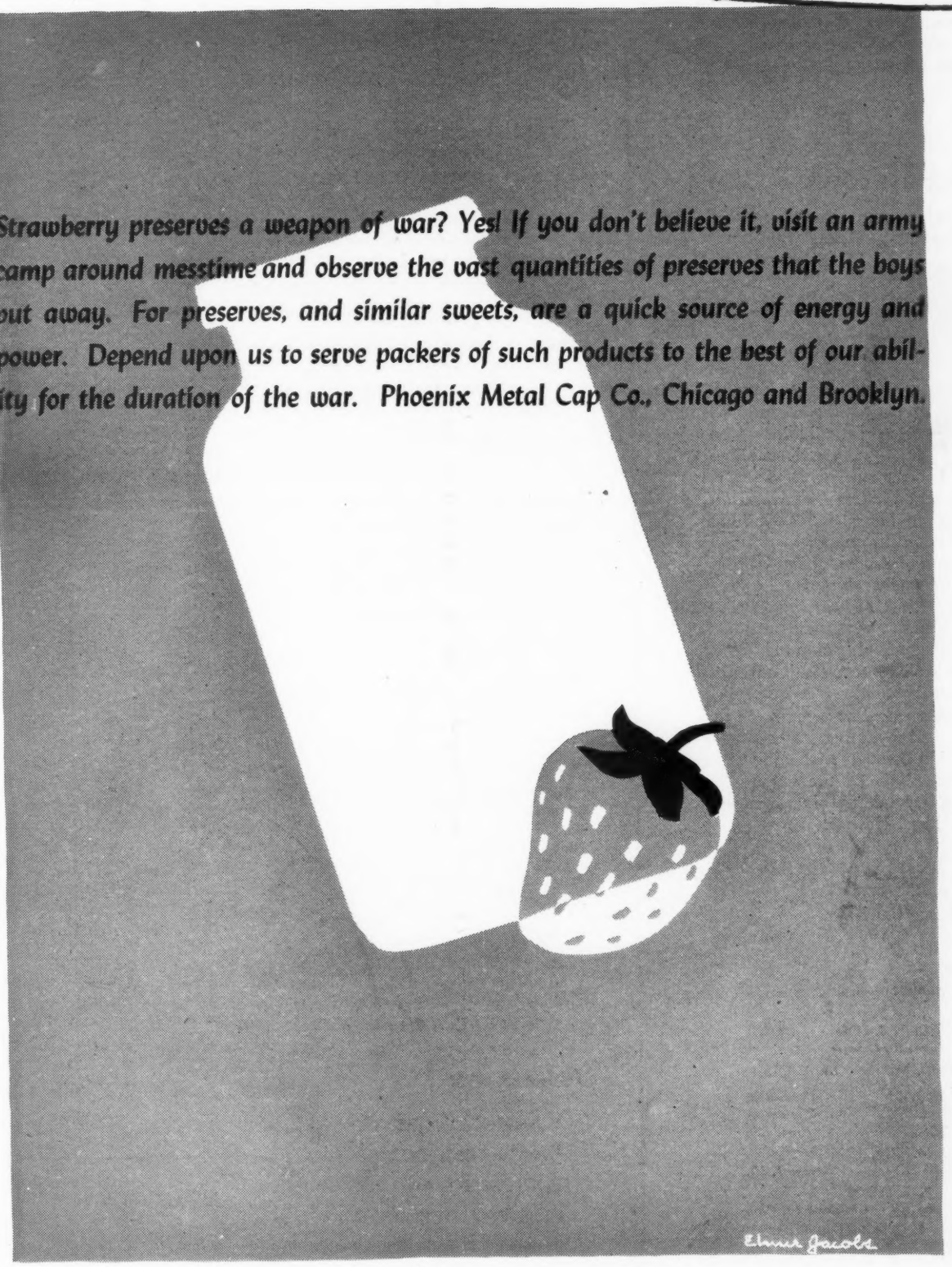
AMERICAN CAN COMPANY
230 Park Avenue, New York 17, N.Y.

Pictured are canned roast beef with gravy, canned hamburger, and canned potato salad — three foods which can be packed in metal containers after the war.

TECHNOLOGY DEPT.

PUBLIC LIBRARY
MAY 16 1944
DETROIT

Strawberry preserves a weapon of war? Yes! If you don't believe it, visit an army camp around messtime and observe the vast quantities of preserves that the boys put away. For preserves, and similar sweets, are a quick source of energy and power. Depend upon us to serve packers of such products to the best of our ability for the duration of the war. Phoenix Metal Cap Co., Chicago and Brooklyn.



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THIS MONTH'S COVER

Like the current Broadway hit, "The Searching Wind," our cover this month has a dual theme. First, it symbolizes a waterproof box with the drops of water detouring around it as indicated by the dotted line.

Second, the picture symbolizes the "blood, sweat and tears" of American packaging engineers and their long hours of laboratory work to provide the waterproof and water-vaporproof barriers for packages that are carrying every kind of war matériel—planes, tanks, jeeps and trucks, ammunition, food, clothing and medical supplies—to the battle fronts of the world. In three short years, the progress that has been made in methods for preventing water-vapor transmission through packaging materials has advanced the science of packaging beyond anything dreamed of before Pearl Harbor.

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MODERN PACKAGING

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"Imagination is the secret and harrow of civilization"

Henry Ward Beecher

Imagination is the secret of modern packaging . . . creating an entirely new conception of sanitation, convenience, and appeal in packaged products. Imagination, harnessed to mechanical and engineering skills, has given birth to high speed packaging machines that are "almost human". Today, the Redington engineering staff is concentrating its skill and imagination on tools of war . . . tomorrow that same ability, enriched by the experience of wartime needs, will be at your service again, designing machines to turn out the new, unusual packages of the Post-War world. F. B. Redington Co. (Est. 1897) 110–112 So. Sangamon St., Chicago, Ill.

REDINGTON

PACKAGING MACHINES

FOR CARTONING • WRAPPING • SPECIAL PACKAGING

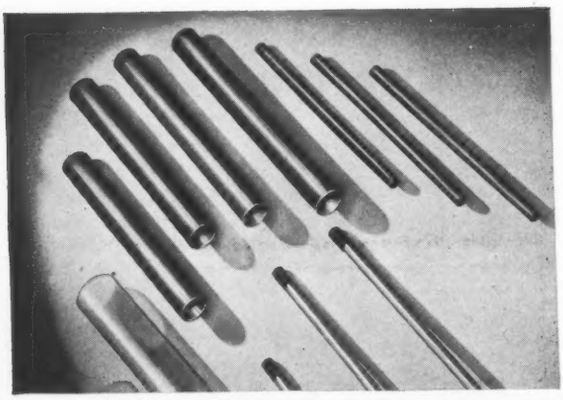
PIONEERS IN PLASTICS

1919 — 25TH Year — 1944

Shatterproof SEAMLESS Containers

Clearsite* has long maintained top-ranking reputation for exceptionally attractive containers. Lustrous colors, transparent or opaque, these shatterproof, *safer* Clearsite containers have been widely used in many fields.

EXTRUSION MOLDED RODS, TAPE, TUBES, SHEETS, and other FORMS



FLEXIBLE OR RIGID, solid or hollow, made in continuous lengths in opaque or transparent Thermoplastics. Made in a wide variety of dimensions.

INJECTION MOLDING. A division devoted entirely to injection molding of all types of Thermoplastics, including cellulose acetate, ethyl cellulose, cellulose acetate butyrate, methyl methacrylate, vinyl resins, tenite, etc.

Our technicians are available for consultation.

* Registered U. S. Pat. Off.

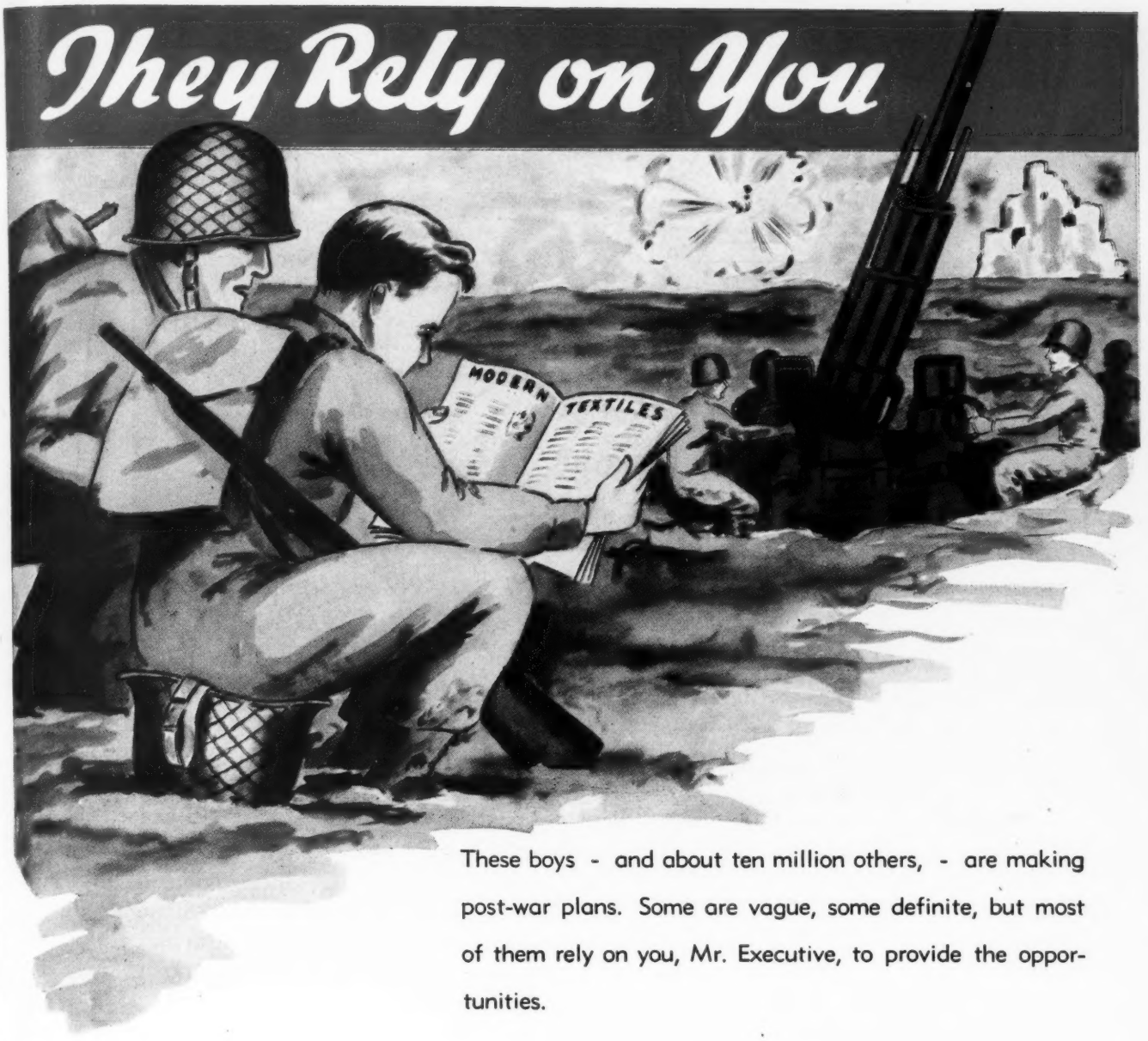
CELLUPLASTIC CORPORATION

FIRST IN CELLUPLASTICS

HYCOLOID-CLEARSITE

60 AVENUE L — NEWARK, N. J.

They Rely on You



These boys - and about ten million others, - are making post-war plans. Some are vague, some definite, but most of them rely on you, Mr. Executive, to provide the opportunities.

When you make YOUR plans, put packaging near the head of the list because wartime developments in packaging methods and materials may have revolutionized your packaging set-up. Better still, call in Old Dominion's creative and engineering staff right away and have them redesign your packages to succeed in tomorrow's stiff competition.

Call On

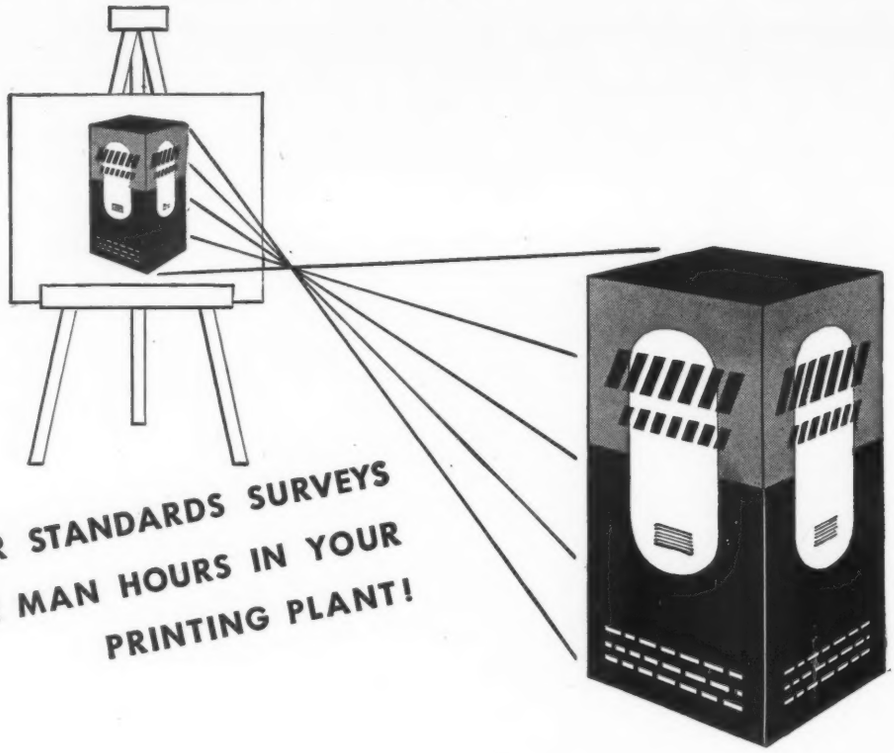
OLD DOMINION BOX COMPANY

CHARLOTTE, NORTH CAROLINA

PLANTS IN NINE SOUTHERN CITIES

Folding Cartons • Set-Up Boxes • Convolute • Spiral Wound and Corrugated Containers

"THE SOUTHERN BOXMAKER WITH A NATIONAL REPUTATION"



HOW IPI COLOR STANDARDS SURVEYS MAY SAVE MAN HOURS IN YOUR PRINTING PLANT!

When package printing problems are complicated by the need to maintain color standards on various types of board and paper, an IPI Color Standards Survey can be a real time-saver. For example: You may be printing a number of different packages for a large manufacturer. Perhaps you are using several types of stock—say patent and clay coated cartons, corrugated containers, glassine and label stocks. Probably the inks must resist certain acids, alkalis or alcohol present in the products.

Give IPI a list of the different stocks and the colors your customer wants on them. Tell us the printing processes that will be used and the resistance tests which the inks must pass. We will then formulate the correct ink for each job. And when we get the colors just the way you want them, we will supply color guides showing the right color on each type of stock —average coverage, darkest allowable tolerance and lightest allowable tolerance. Below each color sample we will print the formula number of the ink used. You may then order by formula number from the nearest IPI branch the inks for any particular job. There will be no lost time resulting from incorrect color matching—no profit-stealing rejects because the inks did not have the necessary characteristics. You will know that the inks are the *right* inks for the job!

For complete information about IPI Color Standards Surveys call the nearest IPI branch *now!*

Leading package, bag, carton, container and label printers have long recognized International Printing Ink's technical skill and experience in the development of materials and methods for uniformity of color control, inks without odor, faster drying inks, non-bleeding wax-set inks, and inks resistant to soap, moisture, mild alkalis, alcohol or food acids. This leadership is the direct result of our continuous program of color research and our use of precision control equipment —such as the General Electric Recording Spectrophotometer, Spectrograph, IC Viscometer, IC Tackmeter, Electron Microscope and other equipment, some of it our own development—for the exact measurement and analysis of color and materials. IPI laboratory technicians and your IPI representatives are equipped to help you. Keep in touch with IPI!

ipi

INTERNATIONAL PRINTING INK

DIVISION OF INTERCHEMICAL CORPORATION

EMPIRE STATE BUILDING • • • NEW YORK CITY

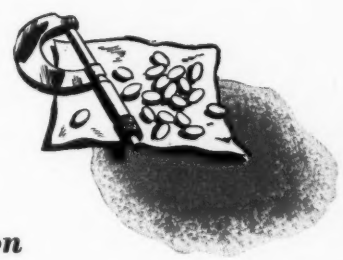
Do You Know

Today, the entire output of *Pliofilm* is doing the most strategic and difficult moistureproof packaging job of the war. After two years of continuous, successful service, *Pliofilm* stands alone in its ability to perform this important war job—because *Pliofilm* seals moisture out.

FRUITS AND VEGETABLES KEEP FRESH for months without change in taste or color when sealed in *Pliofilm*—because *Pliofilm* seals moisture in.

(Exhaustive tests by the University of Florida prove it)

EVERYTHING FROM PEANUTS TO PRECISION INSTRUMENTS will keep and sell better packed in *Pliofilm*—after victory—because *Pliofilm* keeps moisture where you want it!



For better postwar packaging, count on

GOODYEAR
THE GREATEST NAME IN RUBBER

Pliofilm

A PRODUCT OF GOODYEAR RESEARCH

BUY WAR BONDS FOR KEEPS

Pliofilm—T. M. The Goodyear Tire & Rubber Company

Hear Goodyear's Two Great Radio Shows—WALTER PIDGEON
In "The Star and the Story"—CBS—Sunday evenings, "HOOK 'n' LADDER FOLLIES"—NBC—Saturday mornings

● When rapid-firing guns get hot, they get thirsty. If they get too dry, they're likely to freeze, jam up.

That's where the can comes in. It carries oil—all kinds of fine lubricants that protect delicate mechanisms. Not only guns, but planes, tanks, jeeps.

Which brings us to your next new car. New and better oils will be needed to guard its operation. If we know the oil industry, they'll be ready. And you'll get these oils in refinery-sealed cans—the exact grades and brands you want, completely protected.

Many things will soon be back in cans—beer, coffee, shortening. There'll be new things in cans, too. As war is proving, the tin can is the best all-around container . . . strong, safe, convenient.

We're doing a lot of research today. Not just on cans, but on products. Many of our discoveries for war someday will be mobilized for peace . . . so that in the years to come you'll enjoy *new and better things in Continental cans.*

NOTE TO MANUFACTURERS: We will be glad to discuss future uses or improvements of your product or package, and to help you in post-war planning. Write to our Post-War Planning Department, 100 East 42nd Street, New York City 17, N.Y. or Continental Can Company of Canada, Limited, Montreal.

SAVE TIN CANS—HELP CAN THE AXIS

CONTINENTAL CAN COMPANY

NEW AND BETTER THINGS IN CONTINENTAL CANS

Awarded to Plant 78, Chicago • Illinois

ARMY E NAVY

ADVERTISING IN *Action*

Point-of-purchase and point-of-use advertising material, sponsored by the Rumford Chemical Works — keyed to the war effort — presents practical suggestions on how to CONSERVE FOOD, STRETCH RATION POINTS and SAVE TIME. Similar timely and objective Forbes creative thinking will help YOU stimulate essential wartime activities and speed postwar reconversion.

8-PAGE FOLDERS

WINDOW DISPLAY

FORBES LITHOGRAPH CO.

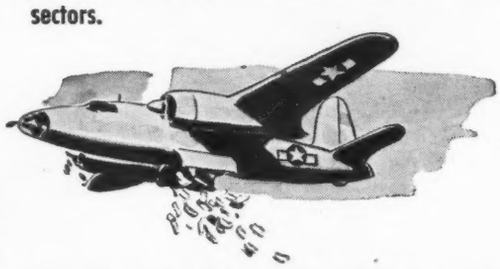
THE SHOP BY THE SEA

P. O. BOX 513 · BOSTON 2

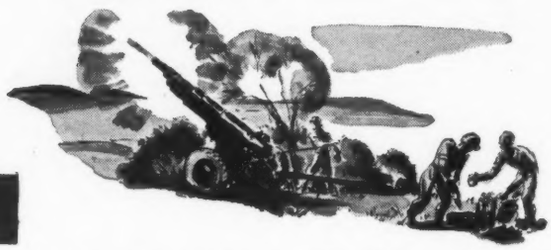
NEW YORK CHICAGO CLEVELAND ROCHESTER

The PAPER barrage never stops

Agents or night patrols leave leaflets in enemy sectors.



The Tactical Air Forces drop printed propaganda far back of the lines.



Enemy units as far as eight miles away are bombarded with leaflet-packed shells.

The morale-weakening barrage of paper leaflets, maps, pictures and news items never ceases.

The enemy gets the news of Russian gains and the bombing of German cities as quickly as you get it in your morning newspapers.

Forbidden topics and secret news of reverses on all fronts are printed on presses carried in trucks.

With all radios controlled, all news sources guarded, paper alone can get the word of Allied achievements to enemy troops, to occupied countries, to the busy underground.

But the propaganda part is only the beginning of paper's war work.

"Give paper a chance," say the experts when faced with shortages in vital or strategic materials.

That's why paper is used for surgical dressings, sun helmets, powder for big guns, bomb fins and small parachutes. Literally hundreds of strange jobs are being done today by paper. More are looming up.

Making a thousand miles of paper a day, as we do, we have seen paper and pulp products enlarge their horizons of usefulness again and again. We believe that in the peacetime industry to come, paper will continue to prove its value as an efficient, capable aid to modern living and to modern manufacturing.

OXFORD PAPER COMPANY

230 Park Avenue, New York 17, N. Y.

WESTERN SALES OFFICE: 35 E. Wacker Drive, Chicago 1, Ill.
MILLS AT: Rumford, Maine; West Carrollton, Ohio

IDEA! ...for the future

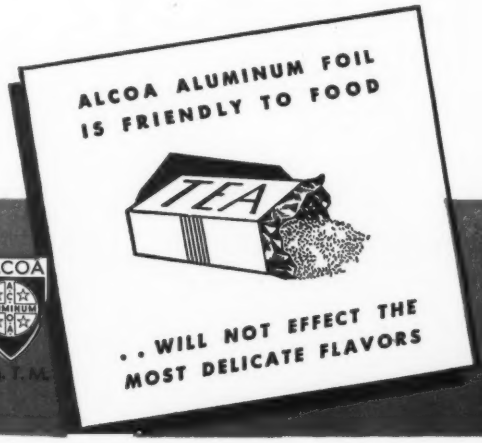
More than an idea, really. The pipedreaming has all been done. When aluminum foil is again available for civilian use, heat-sealed Alcoa Foil will be ready, willing and able to give you a better package for your product.

Ready, because ways have been worked out for production of heat-sealed aluminum foil packages . . . bags, pockets, tapes, liners for boxes and cartons. Machines and methods have been developed, need only to be adapted to your own production.

Willing, because there will be seven times as much aluminum-making capacity as there was in 1939. More capacity for rolling out Alcoa Foil, too.

Able, because the protective properties of heat-sealed Alcoa Foil have been proved more convincingly than ever by the war. Packages can be made 100% airtight, 100% vaporproof, 100% waterproof, 100% lightproof. Even the most sensitive products can be delivered as packed.

Imagineering is called for. It's time for imagination to play with these facts and for engineering brains to blueprint them into better postwar packages for specific products . . . like yours. We make a specialty of Imagineering, in case you're interested. ALUMINUM COMPANY OF AMERICA, 2129 Gulf Bldg., Pittsburgh 19, Pa.



ALCOA *Aluminum Foil*

DELTASEAL IS THE ANSWER TO MANY NEW PACKAGING PROBLEMS...

Possibly to yours

WHATEVER YOUR PROBLEMS in the post war packaging of your products, new or old, it's likely that you'll find the answer among the wide range of bags Bemis makes.

FOR INSTANCE, IF YOU HAVE A FREE-FLOWING, POWDERED OR GRANULAR PRODUCT to sell at retail, the Bemis Deltaseal System of Packaging, with *proven* sales power, is a very probable answer. Deltaseal Paper Bags win choice display space because they're so easy to stack and handle. They attract buyers by their trim appearance and colorful printing. They bring repeat business because customers find them so convenient to use. And in your packaging departments the efficiency of the Deltaseal closing method saves time and money.

IF YOU HAVE OTHER TYPES OF PRODUCTS or merchandising problems, the answer may be in other Bemis Bags . . . waterproof, multiwall, cotton or burlap, possibly.

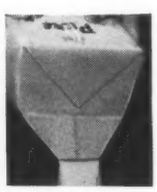
THE REAL KEY lies in the Bemis staff of packaging engineers, backed by 86 years of experience. If the bag you need isn't already in the Bemis line, they'll tailor-make one to fit your requirements to a "T".

DELTASEAL BAGS

Have the "Easy-Pour" Spout

1. *Pull* UP FLAP

2. *Cut* ON DOTTED LINE



3. *Pour* LIKE THIS

Nearly everything that American families eat, wear or use may make at least part of the journey to them in a Bemis Bag.

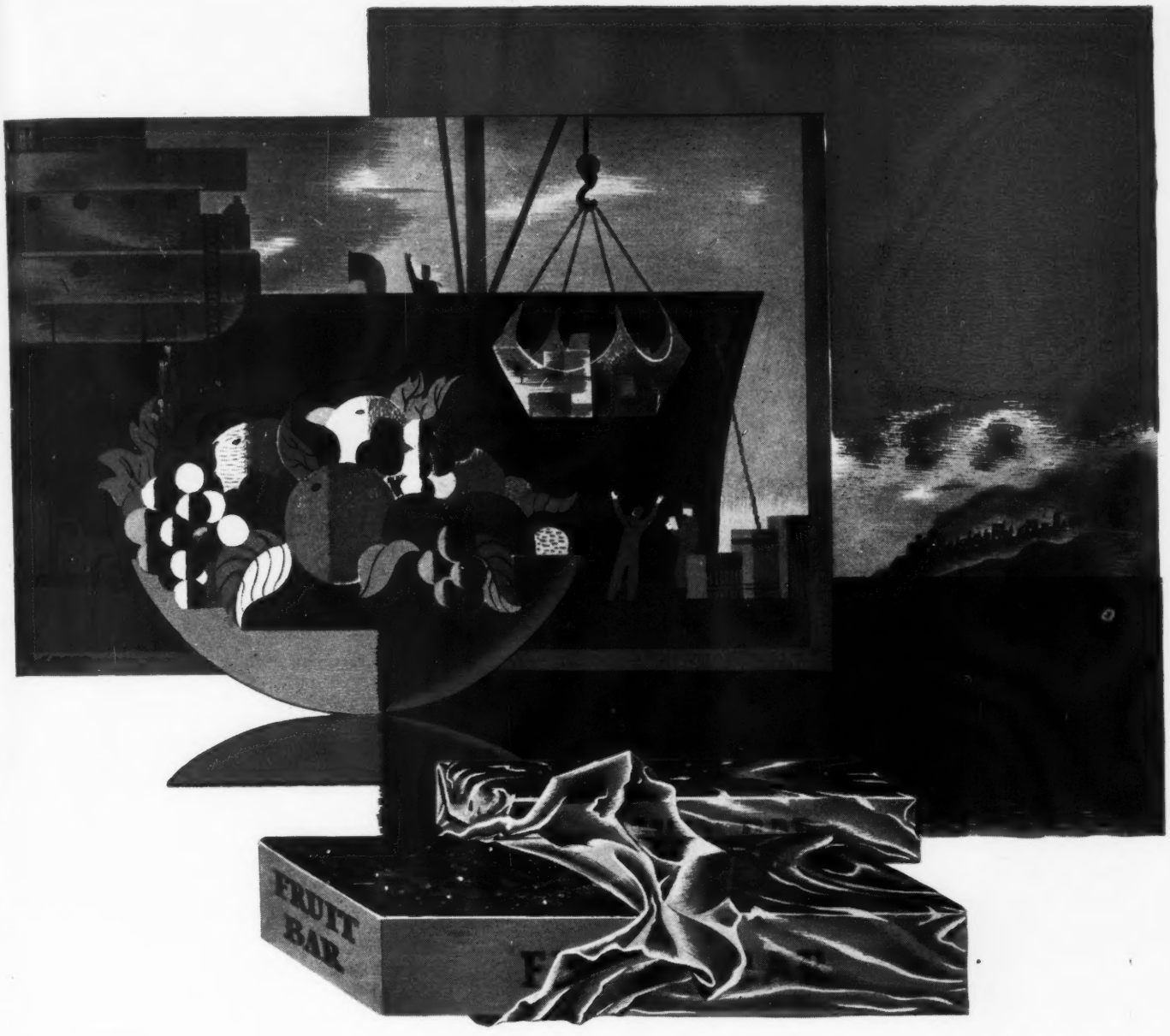
BEMIS BAGS

BEMIS BRO. BAG CO.

OFFICES: • Baltimore • Boston • Brooklyn • Buffalo • Charlotte Chicago • Denver • Detroit • East Pepperell • Houston • Indianapolis Kansas City • Los Angeles • Louisville • Memphis • Minneapolis Mobile • New Orleans • New York City • Norfolk • Oklahoma City Omaha • Peoria • St. Helens, Ore. • Salina • Salt Lake City • San Francisco Seattle • Wichita • Wilmington, Calif.

BETTER BAGS FOR 86 YEARS

Invest Today in War Bonds



Sylvania Cellophane*

BRINGS FRUIT TO THE FIGHTING FRONTS

As components of Field Ration (Type-K) there is no telling when or where these fruit bars will go into action! But, *whenever* and *wherever* they do, they must be fresh, wholesome, tasty, satisfying and nourishing. Sylvania cellophane, in accordance with Army specifications to insure moisture-vapor-resistant wrapping, is used to preserve and protect contents.

ARMY E NAVY

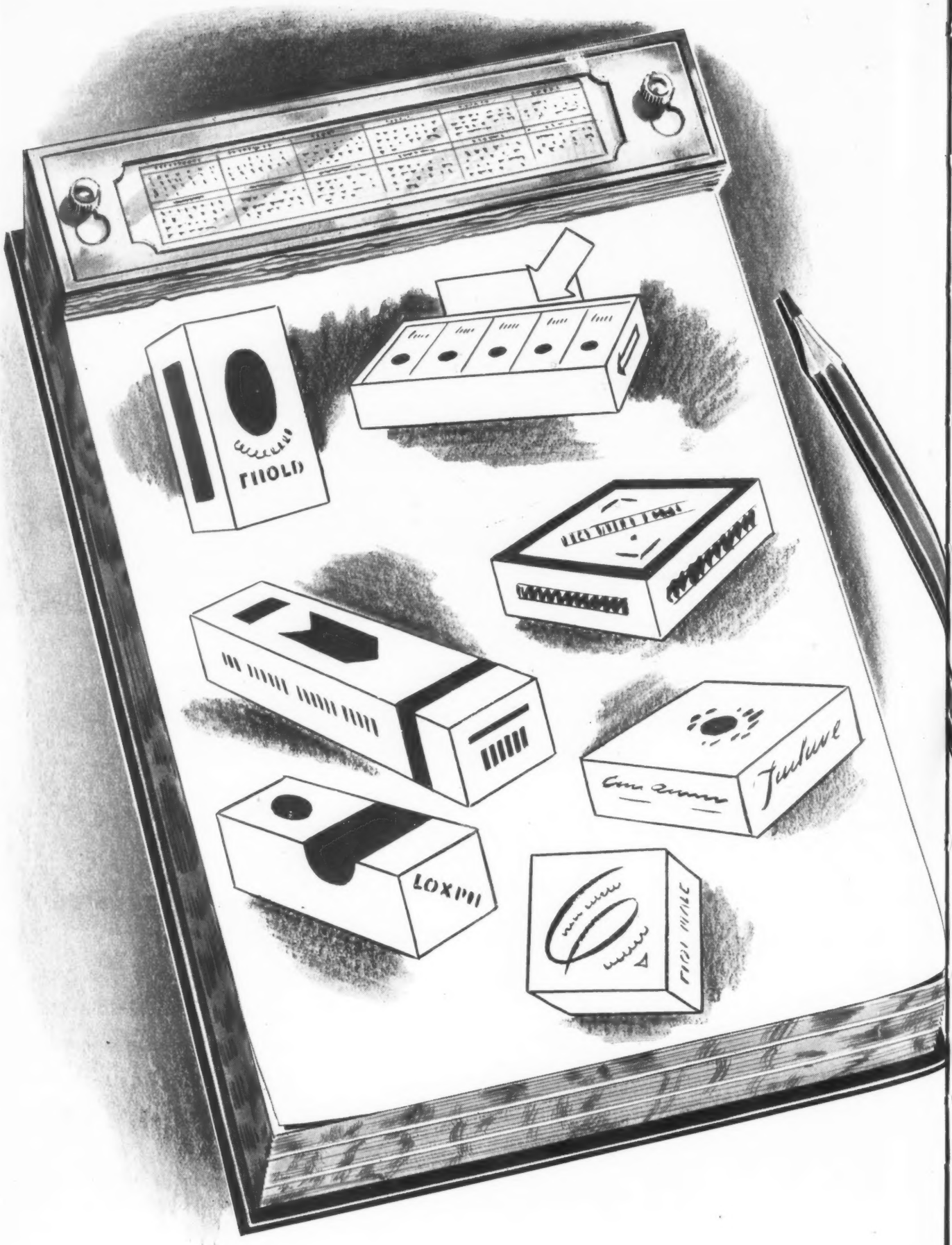
SYLVANIA CELLOPHANE

SYLVANIA INDUSTRIAL CORPORATION

General Sales Office: 122 East 42nd Street, New York 17, N. Y.

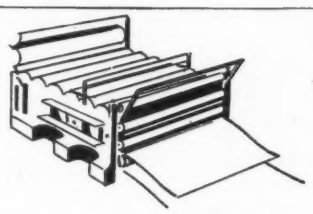
Works and Principal Office: Fredericksburg, Virginia

* Trade Mark Reg. U. S. Pat. Off.

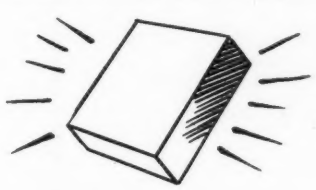

Future

MAKE A POSTWAR DATE, RIGHT NOW... *with Coated Lithwite*

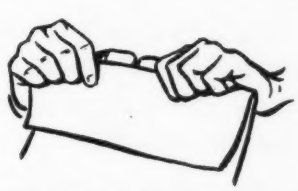
THE MINUTE war demands ease up, this revolutionary paperboard will again be available for more brilliant folding cartons. Meantime, on Gardner-Richardson's drafting boards, smart new ideas are taking shape in *Coated* Lithwite for some smart postwar merchandisers. When V-Day comes their designs and plates will be ready to roll on this "stand-out" paperboard. If you'd like the competitive advantage of *Coated* Lithwite cartons for your afterwar selling, get in touch with us now . . . now when our technical and creative staffs can work on your packaging problems without delay. And if you are not familiar with *Coated* Lithwite's unusual qualities, write and we will send you printed samples at once. One look and you'll understand why so many postwar planners are turning to *Coated* Lithwite and Gardner-Richardson for folding cartons.



STREAMLINED ECONOMY. Coated Lithwite is formed, made and coated in one continuous operation on one machine—a production achievement.



FINER PRINTING. Its velvety white surface is so uniform, so hard, so free from "chalkiness," that inks stand up brilliantly, halftones print crisply.



PRECISION FOLDING. Coated Lithwite folds and scores without shattering. It also seals more positively in today's high-speed automatic machines.

The GARDNER-RICHARDSON Co.

MIDDLETOWN, OHIO

Manufacturers of Folding Cartons and Boxboard

Sales Representatives in Principal Cities: PHILADELPHIA • CLEVELAND • CHICAGO • ST. LOUIS • NEW YORK • BOSTON • PITTSBURGH • DETROIT

Announcing 4 Products for the control of moisture-vapor transmission

Darex Thermoplastic Coating Materials give tough, continuous, moisture-resistant films for the safe packaging of hygroscopic and moisture-sensitive products. Since the introduction of the first Darex coating in 1937, they have been used on millions of packages with an enviable record of success. In response to wartime demands, they have come to the rescue in solving many urgent problems in packaging critical war materials.

Darex Thermoplastic Coatings are not to be confused with ordinary waxes. They are made from selected blends of wax which have been reacted with complex non-waxy materials to yield homogeneous, tough, film-forming products. They are stable throughout the operating range of their use and do not separate, stratify, or throw out in the melting tanks. They vary from hard, non-blocking films to soft, permanently plastic adhesives, all of which are sealable under heat and pressure.

Right now, restricted amounts are available for a few additional customers. After the present emergency, Darex Thermoplastic Coatings will be available in unlimited quantities.

We don't claim that these products are a cure-all. Competent box-making and sealing are also necessary. However, in view of the success we have had in solving critical problems, isn't it worth your while to talk over your plans with one of our engineers?

DAREX THERMOPLASTIC COATINGS

P-15 Group

Uses: Outside dipping of finished cartons, either single or double dip.

Inside-outside dipping of cartons (DACCA process) before packing.

Can be used to coat any package from 10 cu. in. to 850 cu. in.

Properties: Viscosity range 20-50 cps. @ 175°F.

Flow point 135°-145°F.

Suitable for extremes of 140°F. to —20°F.

Give hard, transparent, smooth, continuous film.

Moisture-vapor transmission through correctly sealed and constructed cartons, less than 0.10 gm./100 sq. in. in 24 hrs. @ 100°F. 90% R.H., as measured by anhydrous $CaCl_2$ pack.

Average covering approximately 11-20 gm./sq. ft. of surface.

AM, BM, CM Group

Uses: Coating collapsible tubes.

For inside coating of fiber containers for hot packs, jellies, and jams, up to 170°F.

Properties: Viscosity range 23-33 cps. @ 230°F.

Flow point 155°-175°F.

Resistant to pH of 3.5 to 12.

Have great flexibility, strength, adhesion to metal.

158-P Group

Uses: Heat-sealable coatings for special papers, glassines, cellophane.

Properties: Viscosity high, suitable for coating work.

Flow point 150°-160°F.

Flexibility and adhesiveness over wide range of temperatures. Translucent coating.

Moisture-vapor transmission less than 0.10 gm./100 sq. in. in 24 hrs. @ 100°F. 90% R. H.

60-P Group

Uses: High-viscosity laminating adhesives for glassines, cellophane, special papers.

Properties: Viscosity extremely high.

Give transparent, permanently soft plastic film, with high tensile strength and permanent tack. Due to high viscosity, will not delaminate under heat.

Spread approximately 5-20 lb./ream (24 x 36—500).

ARMY E NAVY

DEWEY AND ALMY CHEMICAL COMPANY

Cambridge, Massachusetts

Chicago Oakland Montreal

DAREX THERMOPLASTIC COATINGS

PERFECTION

BOX COVERING PAPERS

ARE ATTUNED TO THE TIMES—WHILE SOME MATERIALS ARE RESTRICTED AND OTHERS ARE SCARCE, WE ARE STILL GETTING MANY BEAUTIFUL EFFECTS FOR SEASONAL AND YEAR 'ROUND USAGE.

WE WILL GLADLY FURNISH SAMPLES AND SUGGESTIONS FOR SMART AND ATTRACTIVE WAR-TIME PACKAGING.

This sample — Pattern C. W. 0135-B — White Chrome base

ROYAL PAPER CORPORATION

Manufacturers of Decorative Papers

210 Eleventh Avenue • New York 1, N. Y.

DO ALL YOU CAN TO WIN THE WAR IN '44

Buy MORE WAR BONDS TODAY—
For a Better Tomorrow

Gaylord Boxes

New York • Chicago • San Francisco • Atlanta
New Orleans • Jersey City • Seattle • Indianapolis • Houston • Los Angeles • Oakland
Minneapolis • Dallas • Jacksonville
Columbus • Tampa • Fort Worth • Detroit
Cincinnati • Des Moines • Oklahoma City
Portland • Greenville • San Antonio
Memphis • Kansas City • Milwaukee
Bogalusa • Weslaco • St. Louis
Hamden • Appleton

Buy more and more War Bonds right now, so that when Victory is won, speeded by your purchases, you will be ready to have Gaylord work with you on your Postwar packaging plans.

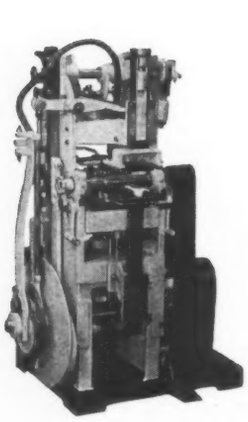
For your new items, or for your present line, Gaylord will have new papers, new containers, new printing processes, that will help you to sell more goods and reduce your packaging costs at the same time.

Count on buying War Bonds now—count on Gaylord to work with you in solving your Postwar packaging problems.

GAYLORD CONTAINER CORPORATION, General Offices: SAINT LOUIS

CORRUGATED AND SOLID FIBRE BOXES
FOLDING CARTONS . . . KRAFT GROCERY BAGS AND SACKS . . . KRAFT PAPER AND SPECIALTIES

She bet on a horse— ...and Won!*



**the PONY LABELRITE*

Three girls were badly needed on production—and couldn't be found—until the boss' secretary urged the installation of a Pony Labelrite. She remembered hearing that Labelrites eliminated the wiping of containers; required no Re-positioning of labels. *That* spelled the doom of the old labeling method, in favor of the Pony with its perfect register, its 60 or more per minute, AND—the needed help was found right in the plant! Maybe faster, *better*, precision labeling Labelrites will do as much for you. To save both time and money—for years—send for a Labelrite Catalog. See what you CAN get in low-cost Labelrites!

NEW JERSEY MACHINE
CORPORATION

1600 Willow Avenue
HOBOKEN, N. J.

325 W. Huron Street
Chicago, 10, Ill.

He's poison to the enemy . . . *all* the way in

From transport to beachhead, this attacking soldier is ready for any surprise resistance. His rifle, dry inside the Lumarith V.N. waterproof bag, can be fired without removal. Because Lumarith V.N. is elastic, he can press on the trigger from outside the bag.

Here is a spectacular application for Lumarith V.N. (vinyl base), the new transparent, elastic, waterproof packaging plastic. A Celanese process permits the casting of vinyl plastic into extremely thin sheets. Tear strength registers better than many other vinyls of double the thickness. Lumarith V.N. is soft and pliant.

Here is a packaging sheet that can be developed to give superior protection to food, drug, tobacco, machine parts, electrical equipment, yes, and many other products of the post-war period. Civilian markets will have a host of uses for Lumarith V.N.

Celanese Celluloid Corporation is preparing a photographic record of the wartime jobs of all the Lumarith packaging plastics. It will be a movie you won't want to miss. Write for release date, and make arrangements to have it shown at your next meeting. Celanese Celluloid Corporation, *The First Name in Plastics*, a division of Celanese Corporation of America, 180 Madison Avenue, New York City 16.

Lumarith* V.N.

A Celanese Plastic*

*Reg. U. S. Pat. Off.

TUNE IN The Celanese* Hour—*"Great Moments in Music"**—Columbia Network, Wednesdays, 10 P. M., E. W. T.

They know what they're fighting for

The following statement was made by a soldier to Chaplain William L. Young, after an Inter-Faith Camp Forum. Quoted from a letter written by Chaplain Young.

"Chaplain, I left the meeting and just had to talk to someone. A miracle happened to me there. I am a Greek American...My attitude has been rather cynical...There has been persecution in my life and I, in turn ...have looked down on other groups. As Rabbi --------- was speaking, I noticed that I was standing beside a colored soldier. All at once a new feeling came over me. I looked up to the heavens and thought that, in spite of the inequalities in life and all the troubles of the world, there was something great and good worth fighting for. And dying for, if need be. Chaplain, my religion is going to mean something to me from now on."

BONDS FOR LETTERS!

TWO $25.00 WAR BONDS WILL BE AWARDED EVERY MONTH FOR EACH LETTER PUBLISHED.

Have you received a letter from a serviceman illustrating the spirit of cooperation and understanding which unifies America's fighting men of all faiths, races, backgrounds? If so, send it to Arrow Mfg. Co. You and the writer will *each* receive a $25.00 War Bond if letter is accepted for publication. All letters will be returned.

*ONE OF A SERIES OF ACTUAL LETTERS FROM MEN WITH THE ARMED FORCES, EXPRESSING THE DEMOCRATIC IDEAL — A POWERFUL WEAPON IN WAR, A PROMISE OF ENDURING PEACE FOR ALL MANKIND.

Arrow is proud that it is today the country's largest supplier of the boxes which hold the medals for the heroes in our Armed Forces.

Arrow

BOXES AND DISPLAYS

ARROW MANUFACTURING COMPANY, INC., FIFTEENTH AND HUDSON STREETS, HOBOKEN, NEW JERSEY

PALMER
CHICAGO

Mr. Ralph W. Johns

EASTERN DIVISION SALES MANAGER

Ralph knows every Palmer development. He has an important message for you if you have a production problem.

ANNOUNCING A WIDE RANGE IN PACKAGES AND EQUIPMENT—DEVELOPED FOR AND TESTED BY EXCLUSIVE USERS—AVAILABLE AFTER THE WAR FOR GENERAL USE

High speed lined carton equipment—cartons formed over liners—**SIMPLIFIED**; *Heat sealed liners in locked boxes; New fast equipment for slip cover boxes*—**SIMPLIFIED**; *Carton top sealers*—**SIMPLIFIED** *for minimum space; Heat sealed bag making and filling equipment—high speed; New high accuracy volumetric fillers. New bottle-filling equipment; New milk cartons-forming and waxing equipment; New sealed ice cream packages and equipment; Special equipment for pharmaceuticals—glass sealing and filling; Special conveyors and handling equipment.*

★ **Other developments now under way will be announced later.**

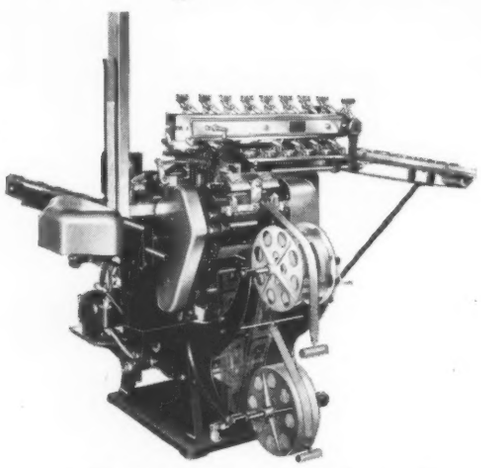
ARMY E NAVY

FRANK D. PALMER, INC., 528 N. Western Ave., Chicago 12, Ill.

PACKAGE DEVELOPMENT LABORATORY — SPECIAL MACHINERY MANUFACTURERS

Fragile and Irregular Shaped Candy Bars-Biscuits-Cookies are

successfully wrapped by Wrap-O-Matic. In fact, Wrap-O-Matics are so ingeniously designed that they can wrap a package of thin air. Shape and texture are no obstacle, neither is the type of wrapper used, for Wrap-O-Matic uses glassine, cellophane, foil or any type wrapper that can be printed in rolls.



Wrap-O-Matics are built in 2 basic models—side-intake (illustrated) for feeding directly from enrober belt . . . straight-intake especially designed for multiple piece products.

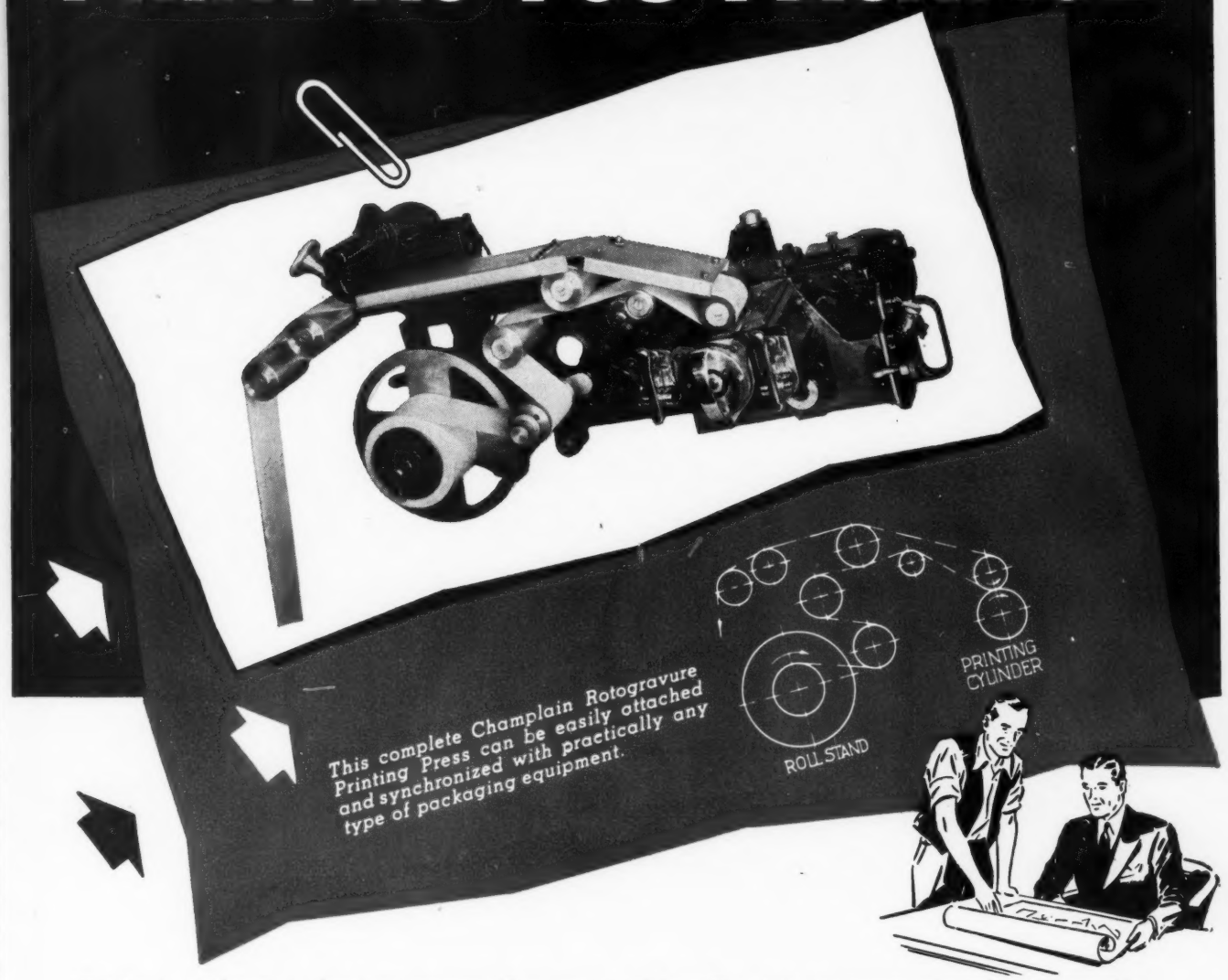
Wrap-O-Matics operate at high-speed—as fast as 120 units per minute—saves up to 80% in labor and up to 35% in wrapping material . . . two vital factors in today's material and manpower shortage. That's why today over 100 leading candy and bakery products are wrapped by Wrap-O-Matic.

You, too, can speed up production, save in wrapping labor and material and add extra sales appeal to your product by installing Wrap-O-Matics. Write today for illustrated brochure and complete details.

LYNCH Manufacturing Corporation, Defiance, Ohio U.S.A.

WRAP-O-MATIC DIVISION

PLAN NOW FOR POST WAR TO PRINT AS YOU PACKAGE


This complete Champlain Rotogravure Printing Press can be easily attached and synchronized with practically any type of packaging equipment.
PRINTING CYLINDER
ROLL STAND

Printing is produced at almost no expense when you "PRINT AS YOU PACKAGE" with a Champlain press synchronized with your packaging machine.

There is no need for auxiliary registration controls, such as photo-electric scanners or the devices operating from perforations, when packaging and printing are combined into one continuous operation.

Printing is automatic! Operation requires no previous printing knowledge nor even an operator whose entire attention is directed toward printing.

The Patented Speedry wholly enclosed ink fountain, essential for quality automatic printing, is an exclusive feature of these Champlain rotogravure presses. It makes possible the use of highly volatile inks which dry in a fraction of a second.

The roll of stock is unwound from a stand and travels through one or more printing units into the packaging machine. Drying takes place as soon as the ink comes into contact with the air.

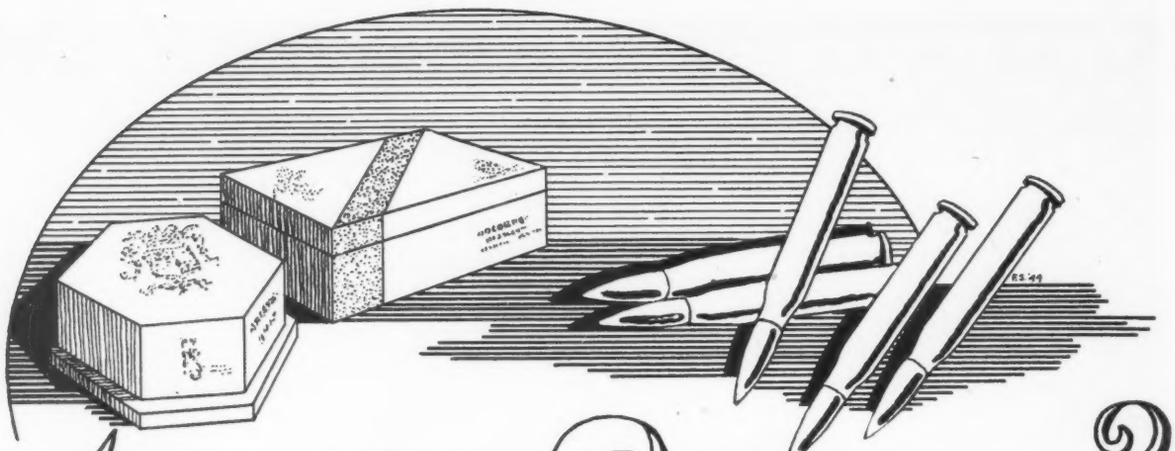
A wide variety of stocks have been printed successfully by rotogravure including foil, cellophane and glassine.

Write for folder entitled "Print As You Package".

Champlain

Division of The Fred Goat Co. Inc., Est. 1893
636 ELEVENTH AVE., NEW YORK 19, N. Y.

Manufacturers of Rotogravure, Aniline and Typographic Presses



Attractive Packages?

It's all in the viewpoint. To the consumer, the civilian commodity may represent the last word in attractive packaging. To the soldier, a handful of cartridges may mean the difference between life and death and consequently appear mighty attractive to him.

But the goods have to be delivered first—whether civilian or military—and they must reach their destinations safely. They will—if they are protected in sturdy shipping containers made of Hopewell Kraft.

And Hopewell Kraft has proven its ability to withstand the rigors of wartime shipping—in delivering the goods at home and on every fighting front.

Hummel-Ross is proud of the part Hopewell Kraft is playing in winning the war, and of the proof—under the most severe tests—that Hopewell Kraft can take it.

HOPEWELL KRAFT

HUMMEL-ROSS
FIBRE CORPORATION
HOPEWELL, VIRGINIA, U.S.A.

POST-WAR IMPRESSIONS
. . . in the making now

Booming business means more packages, more opportunities for your product or store to make its customers ambassadors of good-will to the general public. Lay the foundation now for a greater post-war demand in a competitive market by adopting

Private Design

PACKAGING PAPERS

Your individually-created design on boxes, bags and wrapping paper becomes an easily-recognized symbol . . . building prestige and sales.

IDEAS . . .

WITHOUT OBLIGATION

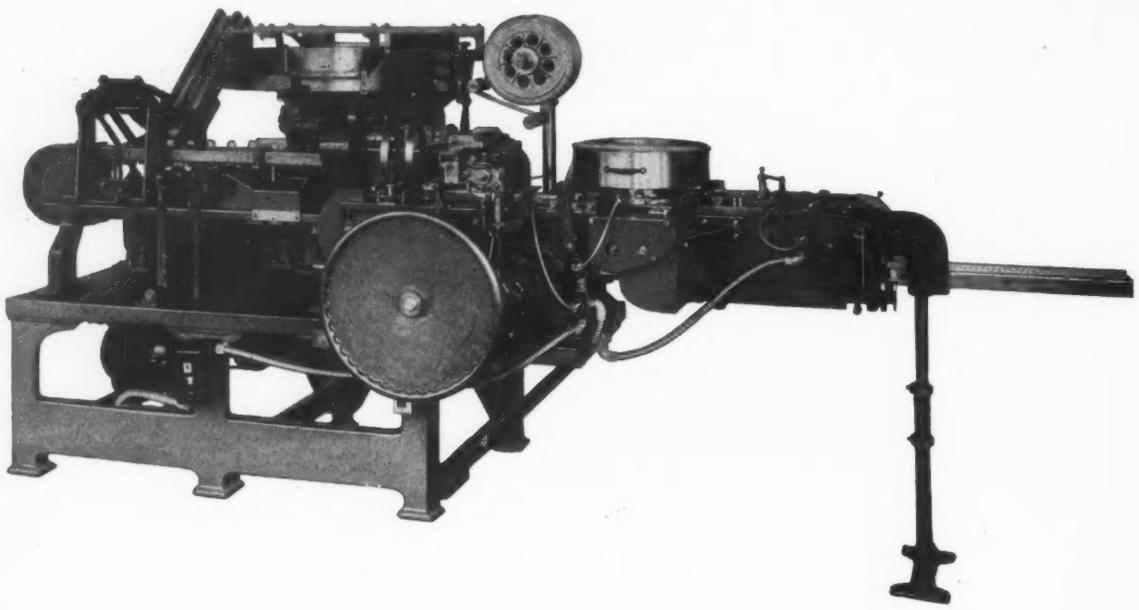
Our experience serving America's leading manufacturers, wholesale and retail establishments will be helpful to you. Let our CREATIVE BUREAU submit suggestions in harmony with your merchandise and traditions. You will be surprised with the effectiveness and economy of our PRIVATE DESIGN PLAN. Write for information.

SPECIALISTS IN PRIVATE DESIGNS . . . PRINTED AND EMBOSSED

MATTHIAS PAPER CORPORATION 165 W. BERKS ST., PHILADELPHIA 22, PA.

HIGH SPEED PACKAGING

of candies and cough drops



For your small penny packages and sample packages, the Model C-21 should answer all your requirements for modern high-speed production, since it operates at a speed of 150 complete packages per minute.

The MODEL C-21 is a duplex type, there being twin carton supply magazines, twin tuckers and twin filling chutes which fill two cartons simultaneously. The filling can be done by count or volume, depending on the product, accurate results being obtained either way.

The machine can be equipped for cartoning only, or for cartoning and lining, or for cartoning and wrapping, or a complete job of cartoning, lining and wrapping. When the machine is equipped with lining and wrapping units, the liners and wrappers are automatically cut from a roll and inserted into the carton.

The illustration above shows MODEL C-21-W which cartons small cough drop and candy packages and wraps the completed carton in cellophane at a speed of 150 packages per minute.

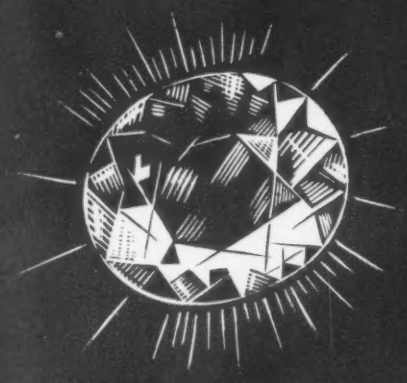
UNITED STATES AUTOMATIC BOX MACHINERY CO., INC.

owning and operating

National Packaging Machinery Co.—Cartoning Machinery Corp.

22 Arboretum Rd., (Roslindale) 31, Boston, Mass.

Branch Offices: New York, Cleveland, Chicago Los Angeles: Krugh Equipment & Supply Co.



Famous Jewels in History - #1

"The Koh-i-nor" – The history of this famous jewel can be traced definitely back to the 14th century. Its name means "fountain of light".

After the British annexed India, the diamond passed into the possession of Queen Victoria and is still the property of the British Crown. Originally a massive stone of 186 1/16 carats it was reduced in size by re-cutting to 106 1/16 carats. The quality of fine gems is not measured by size alone. Nor is the importance of Hazen papers measured by the quantity available.

Let us know your requirements and we'll do our best to supply enough of a desirable pattern to suit your purpose, even under today's difficulties.

HAZEN PAPER CO.

HOLYOKE MASSACHUSETTS

APACO

The Year 1944

Marks the Seventy-sixth Anniversary

of

ATLANTA PAPER COMPANY

A Forward-Looking Concern

With A Great Faith

In The Future

76

Branches

AUGUSTA PAPER COMPANY
Augusta, Ga.

BIBB PAPER COMPANY
Macon, Ga.

GEORGIA-ALABAMA PAPER CO.
Columbus, Ga.

VOLUNTEER STATE PAPER AND BOX COMPANY
Knoxville, Tenn.

★

Associates

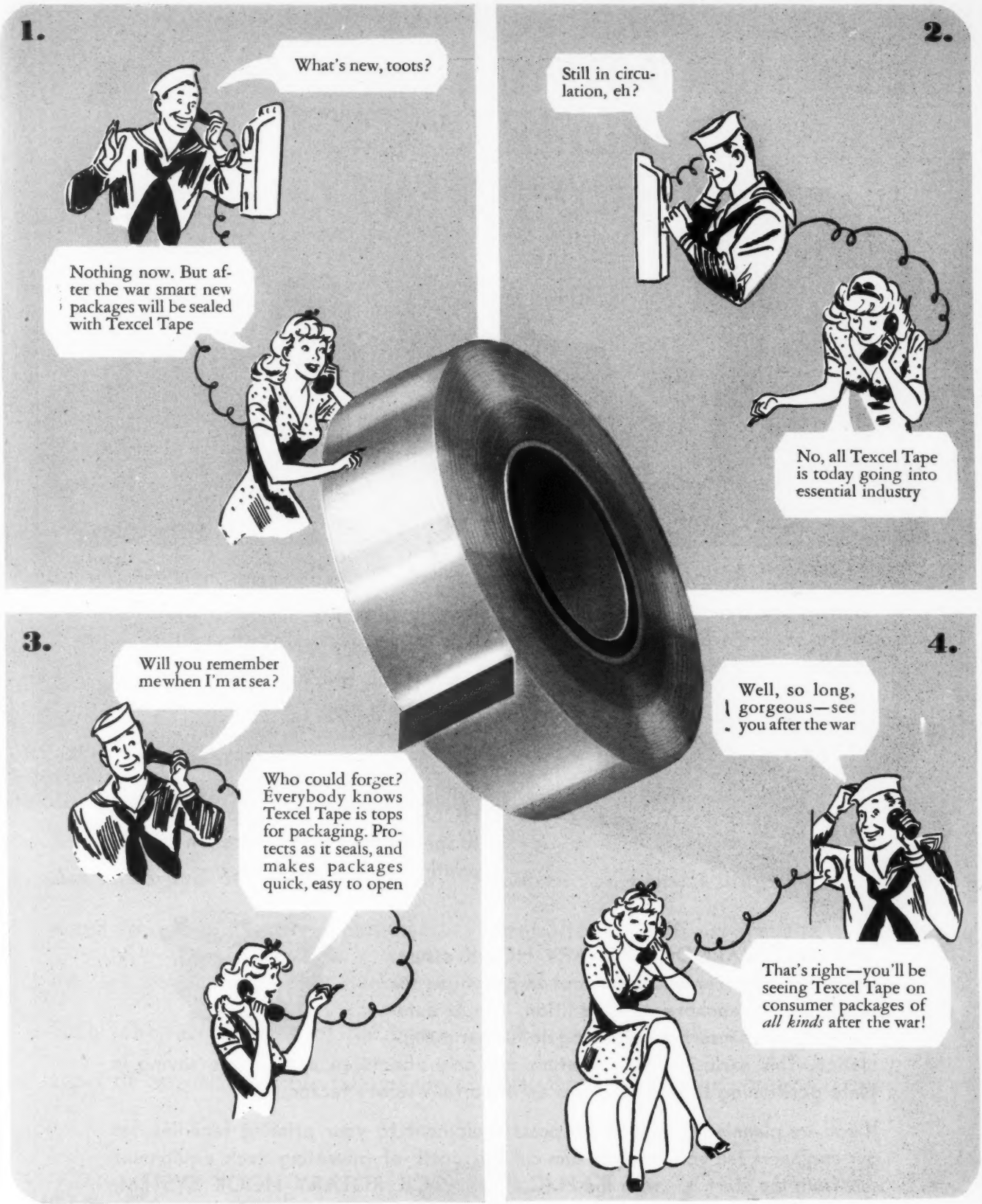
MEMPHIS PAPER COMPANY
Memphis, Tenn.

LITTLE ROCK PAPER COMPANY
Little Rock, Ark.

Apaco
Established
1868

ATLANTA PAPER CO.
ATLANTA, GA.

Manufacturers of **CORRUGATED CONTAINERS · FOLDING CARTONS · PAPER BAGS · PAPER PRODUCTS**


1.
What's new, toots?
Nothing now. But after the war smart new packages will be sealed with Texcel Tape
2.
Still in circulation, eh?
No, all Texcel Tape is today going into essential industry
3.
Will you remember me when I'm at sea?
Who could forget? Everybody knows Texcel Tape is tops for packaging. Protects as it seals, and makes packages quick, easy to open
4.
Well, so long, gorgeous—see you after the war
That's right—you'll be seeing Texcel Tape on consumer packages of *all kinds* after the war!

Texcel Tape

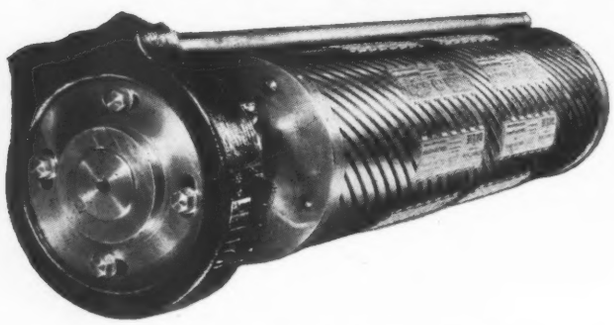
CELLOPHANE TAPE—STICKS WITH A TOUCH

Made by Industrial Tape Corporation

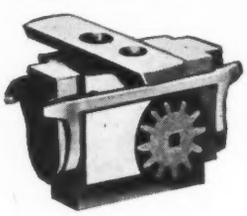
A Division of Johnson & Johnson, New Brunswick, N.J.

DO YOUR POST-WAR PLANS CALL FOR *ROTARY PRESS EQUIPMENT?*

If your post-war package manufacturing equipment is to include a letterpress printing attachment, the design of the latter will probably call for utilization of the rotary press principle, which offers decided mechanical advantages in an installation of this nature.



And if your printing attachment does incorporate rotary press cylinders and involve the use of curved plates, you'll find it profitable to familiarize yourself with the PMC WARNOCK ROTARY HOOK SYSTEM, with its proven ability to speed rotary press operation and cut printing production costs.



THE PMC WARNOCK ROTARY HOOK assures precision register and clear cut impressions via positive plate anchorage. In addition, it locks automatically upon insertion, requiring no further manipulation. This exclusive PMC feature not only effects an appreciable saving in plate positioning time, but is also an important safety factor.

If you are planning to add rotary press equipment to your printing facilities, let our engineers tell you how you can cut the costs of operating such equipment . . . from the start . . . with the PMC WARNOCK ROTARY HOOK SYSTEM, which can readily be made an integral part of any rotary press or rotary printing attachment. Write today for complete details.

THE PRINTING MACHINERY COMPANY

436 COMMERCIAL SQUARE • CINCINNATI 2, OHIO

23 EAST 26th STREET • NEW YORK 10, N. Y.

INTO *Action* IN KIMBLE CONTAINERS

Arsenicals and other drugs, in powdered form, ultimately for parenteral use, are packaged in tubes like these. Such tubes are but one of the many types of essential Kimble Glass Containers. . . . Critical drugs and pharmaceuticals — life-saving and pain-relieving materials — could never be effective without the glass containers that carry them to the point of action.

KIMBLE *Glass* CONTAINERS *For Assurance*

• • • *The Visible Guarantee of Invisible Quality* • • •

KIMBLE GLASS COMPANY . . . . VINELAND, N. J.

NEW YORK • CHICAGO • PHILADELPHIA • DETROIT • BOSTON • INDIANAPOLIS • SAN FRANCISCO

"WE CAN GIVE YOUR PRODUCTS

AGGRESSIVE SALES PROMOTION

in the All-Important

HUBBS HOUSES AREA"

How is your sales set-up in the No. 1 sales territory of America — that prosperous area stretching from Illinois eastwards? Have you the distributors who can get your products into the important quantity-using and big-consuming outlets?

It's time NOW to revalue your selling and warehousing connections in the strategic area served by the Hubbs Houses. We can assist several more mills and convertors.

For a

DISTRIBUTORSHIP

that means

LEADERSHIP

contact the Hubbs House nearest you.

CHARLES F. HUBBS & COMPANY
Lafayette Street Warehouse
Beekman Street Warehouse
NEW YORK, N. Y.

HUBBS & CORNING COMPANY
BALTIMORE, MD.

HUBBS & HOWE COMPANY
BUFFALO, NEW YORK

HUBBS & HASTINGS PAPER CO.
ROCHESTER, NEW YORK

CHARLES F. HUBBS & COMPANY
BRIDGEPORT, CONN.

INTERSTATE CORDAGE & PAPER CO.
PITTSBURGH, PA.

THOMAS J. NAGLE PAPER CORP.
HOLLIS, NEW YORK

HUBBS & HOWE COMPANY
CLEVELAND, OHIO

The

HUBBS HOUSES

Established 1855

HOLLAND PAPER COMPANY
BUFFALO, NEW YORK

CHARLES F. HUBBS & COMPANY
TROY, NEW YORK

and in Canada

VICTORIA PAPER & TWINE CO., LTD.
TORONTO

VICTORIA PAPER & TWINE CO., LTD.
MONTREAL

VICTORIA PAPER & TWINE CO., LTD.
HALIFAX

GARDEN CITY PAPER MILLS CO., LTD.
ST. CATHARINES, ONT.

CANADIAN VEGETABLE PARCHMENT CO., LTD.
MERRITTON, ONT.

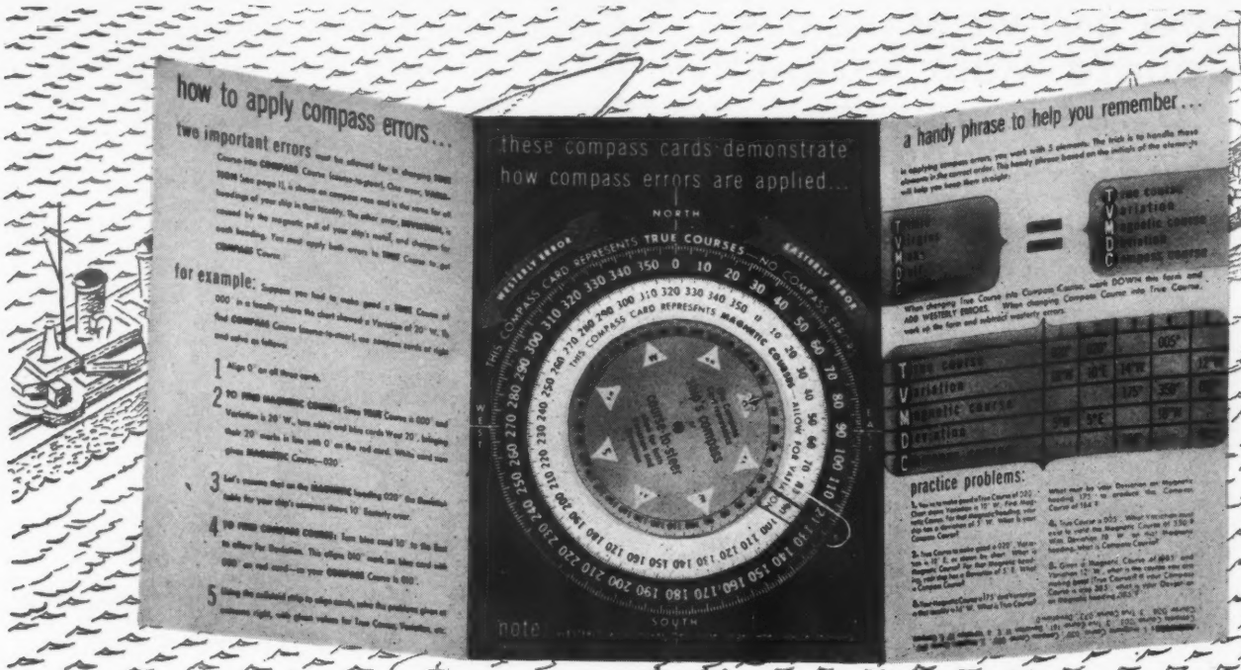
HOW CAN WE MAKE OUR PRODUCTS MOST ATTRACTIVE TO THE CONSUMER, MR. SULIBURK ?
BY UTILIZING THE DISPLAY ADVANTAGES OF THE GLASS PACKAGE

Trim, modern, lustrously clean, the glass container increases the eye appeal of your products. Glass is highly sanitary, is impervious to most products, and, by showing the consumer what he is getting, inspires confidence and promotes acceptance of your brands. Standard stock glass containers of sparkling amber or crystal glass should be combined with labels of attractive design. And select the closure with care; not only its appearance, but its ease of removal and resealing influence consumer preference. For glass packages at their gleaming best, use Anchor Hocking containers and closures—practical, sturdily protective, convenient, and precision-made to "spotlight" your brands in the competition for attention on dealers' shelves.

"Meet Corliss Archer" every Saturday afternoon, entire coast-to-coast network CBS

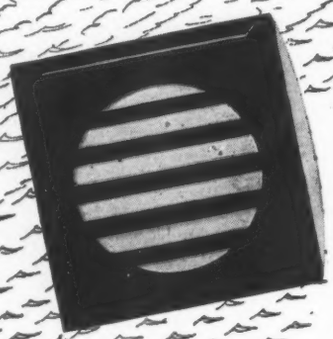
W. M. SULIBURK, one of Anchor Hocking's ablest and most popular men, has been a member of the Anchor Hocking family for 15 years.

ANCHOR HOCKING
GLASS & CAPS
ANCHOR HOCKING GLASS CORPORATION · LANCASTER, OHIO


how to apply compass errors...
two important errors
for example:
these compass cards demonstrate how compass errors are applied...
a handy phrase to help you remember...
practice problems:

Handy Compass Trainer

. . . shows how to lay a course, apply compass errors, compute true, magnetic and ships courses, allowing for deviation and variation; gives common compass problems and their solutions. Miniature ship on revolving plastic arm demonstrates relative bearings and compass angles. Envelope contains detailed instructions . **75c**



Pocket Blinker

Press down with thumb and expose open blinker. Time of exposure makes dot or dash. Standard code letters on back. Makes learning a joy instead of a job! Each . . . **10c**

Semaphore Trainer

Revolving disk with slots shows position of flags for each letter—sending position on one side, receiving on the other. Pocket size. Short cut to Semaphore. Each . **10c**

★ ★ ★ NAVY PA

It takes more to make a sailor than a sailor suit . . . and what it takes has made a lot of Navy paper work for us! Not the red tape kind . . . but paper work to replace missing means and materials needed to make sailors smart and seaworthy!

First there was the Pocket Blinker Trainer. Visual signals are hard to learn, and few lamp blinkers were available for instruction. So we made a matchbook size device, with a plastic spring inside. Press down, and white bars show, simulating open shutters on a blinker. Can be used anywhere to learn the timing for dots and dashes . . . Very successful! The Royal Navy also honored us with an order.

Learning semaphore is difficult, too. In receiving, the left of the man sending is on your right, and all position symbols are reversed. We were consulted on this training problem, and worked out a disk that turns,

EINSON-

STARR & BORDEN AVENUES

showin
one si
Semap
deck,

T
men h
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we wo
folder;
compa
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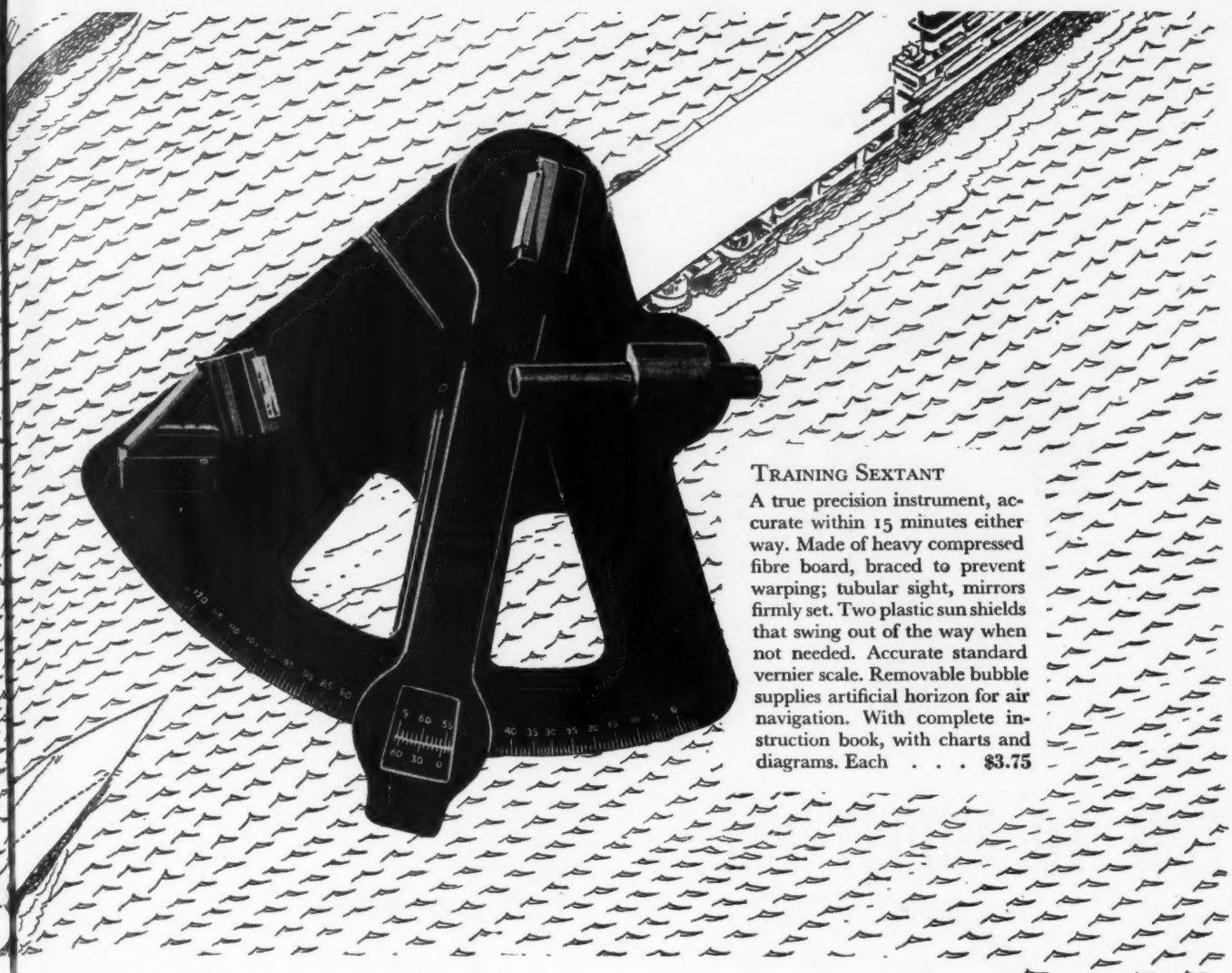
curric
Einso

FR
LONG



TRAINING SEXTANT

A true precision instrument, accurate within 15 minutes either way. Made of heavy compressed fibre board, braced to prevent warping; tubular sight, mirrors firmly set. Two plastic sun shields that swing out of the way when not needed. Accurate standard vernier scale. Removable bubble supplies artificial horizon for air navigation. With complete instruction book, with charts and diagrams. Each . . . **$3.75**

PAPER WORK ★ ★ ★

showing the position signal for each letter—one side sending, the other receiving. Now Semaphore can be learned without flags, a deck, or physical culture.

THERE was another problem in teaching men how to get chummy with a compass in a classroom. With the basic ideas from the Navy, we worked out a handy Compass Trainer folder; revolving cardboard disks simulating compass faces that can be used to compute courses, bearings and target angles, work out common problems.

Our next order was unusual . . . a training sextant for teaching navigation, a precision instrument constructed of cardboard, accurate within 15 minutes either way, usable for both ship and plane navigation. Intended only for shore practice, so many found their way to sea that the second order specified waterprooted material. A comprehensive book of instructions goes with the sextant.

The Navy has suggested that we make these training devices available to civilians, so men subject to call can get some instruction. The devices will be found shortly in one or more stores in principal cities.

We'll send a Pocket Blinker gratis, but to protect retailers stocking these devices, we can fill requests or orders only at standard prices.

Einson-Freeman sold displays with ideas for years. Now that we've had this extra-curricular experience in combining ideas and cardboard—oh boy! After this war is over, Einson-Freeman will make displays that make history as well as customers!

FREEMAN CO., INC., *LAND & SEA LITHOGRAPHERS*

LONG ISLAND CITY, NEW YORK

TIME TO ADJUST YOUR *Buy-Focals*

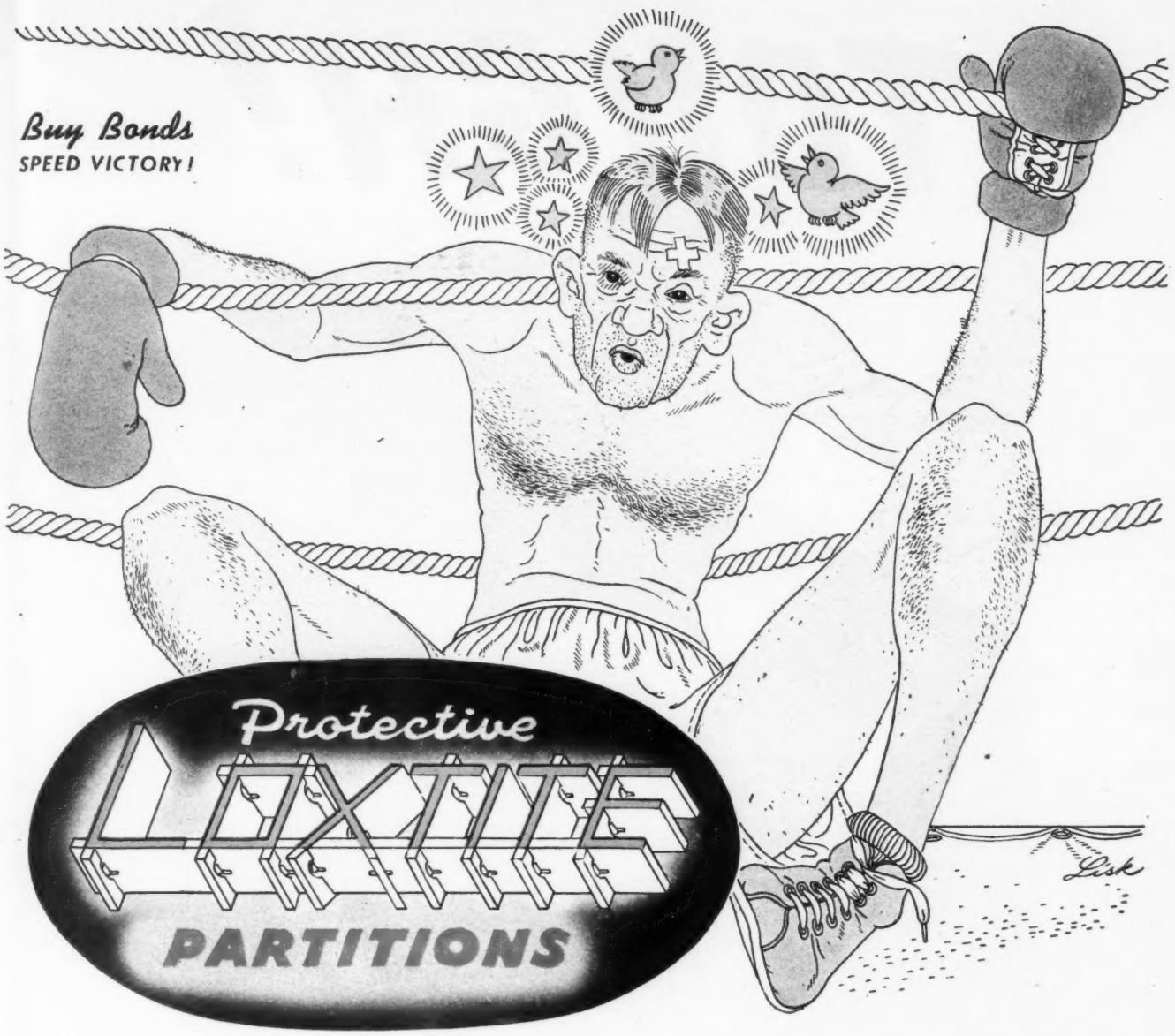
The man who is not constantly adjusting his viewpoint toward change in his post-war packaging, may be overlooking these three essential points.

1. Many new and revolutionary papers and methods have been developed for our war effort.
2. At least one of his competitors is probably planning on something better, easier to use — perhaps less expensive.
3. Even a slight change in the product, its market or its selling price may call for a complete overhaul of the packaging procedure.

Adjust your sights now. Find out what is being done in essential industries with Riegel's 230 Technical Packaging Papers, and what will be available when restrictions are eased.

RIEGEL PAPER CORPORATION

342 MADISON AVE.
NEW YORK 17, N. Y.



Knock Out Time Loss in War Packaging

Pack munitions, parts, rations, etc. in LOXTITE *protective* Partitions . . . tailor-made to your needs. Available for quick delivery on high priority rating. Patriotic packaging demands economy in labor. LOXTITE saves untold thousands of man-hours because it is made on our patented automatic machines which turn out a *superior* product.

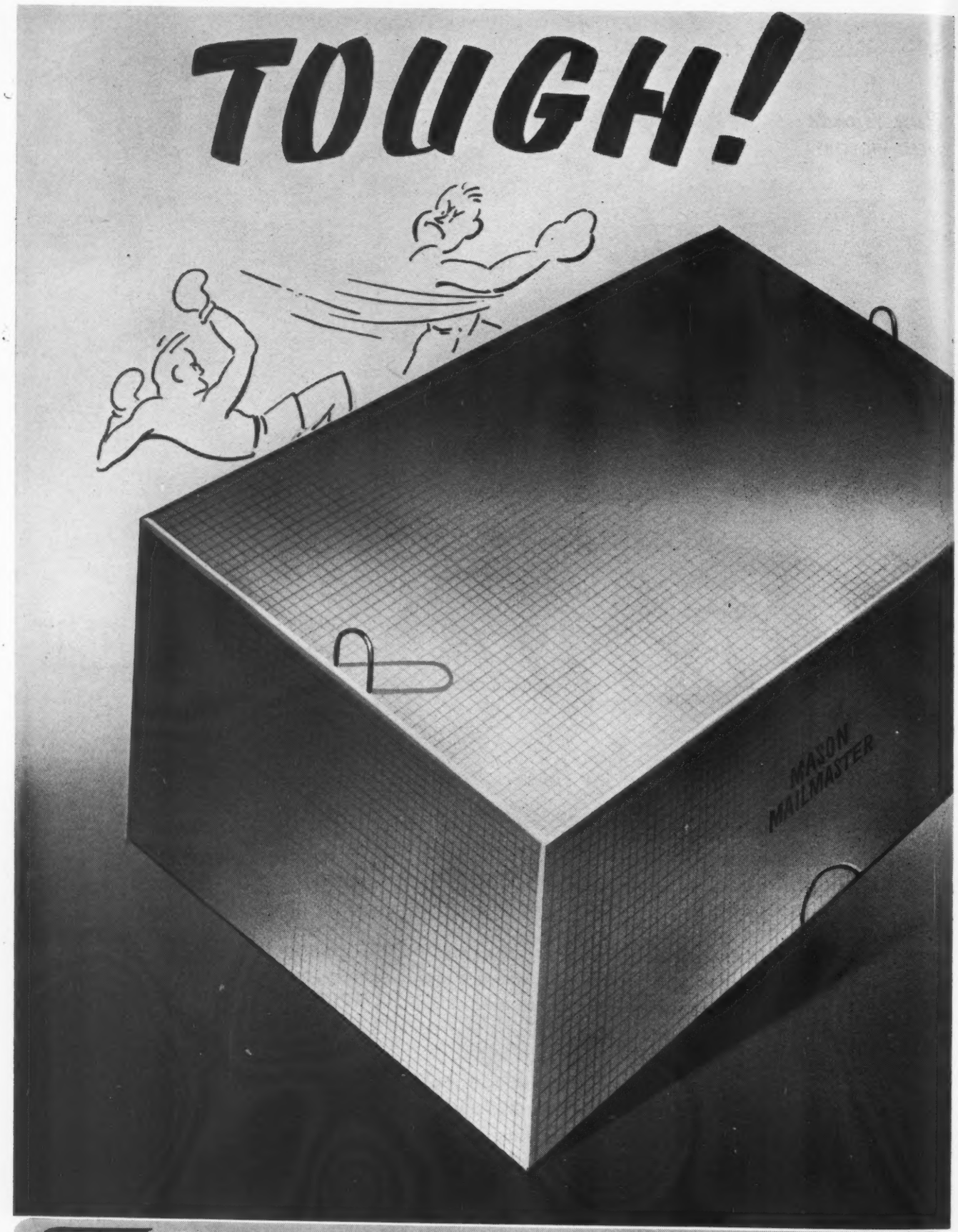
No bruises, abrasions or breakage with LOXTITE *protective* Partitions. Safe arrival in good condition assured. Valiantly meeting all war-time necessities, this packaging method is demonstrating peace-time adaptation to many uses.

Military parts in TITE-SEAL Waterproof Cellophane Bags reach fighting fronts in prime condition. Approved Grade A, type III, wrapping material in Packaging Methods 1 and 1A. *Recommended by Forest Products Laboratory.* • The combination of LOXTITE Partitions *inside* and TITE-SEAL Bags *outside* is packaging par excellence.

Patents Applied for

TRAVER CORPORATION

Dept MP5, 358-368 West Ontario Street, Chicago 10, Illinois



The MASON BOX COMPANY

ATTLEBORO FALLS, MASS.—175 5TH. AVE., NEW YORK

Here is one reason why you can't get all the Cellophane you need for Civilian Goods

THIS soldier carries his life in a tiny package. It contains the famous sulfa drug. Thanks to the discovery of this powerful guard against infection, thousands of lives are being saved on the battlefield.

Du Pont Cellophane helps protect the precious contents of this package, and that is one of the reasons why you can't get all the Cellophane you need. It also protects food rations and medical supplies for our Army and Navy — and even has uses that are military secrets.

These many wartime uses are demonstrating the highly protective qualities of Du Pont Cellophane. They emphasize the valuable service this familiar material renders in preserving the goodness and cleanliness of food products.

The demands for these purposes have reduced the quantity available for essential civilian use. We appreciate your understanding and cooperation, and trust the day is not far off when you can again have all the Cellophane you need.

E. I. du Pont de Nemours & Co. (Inc.), Cellophane Division, Wilmington, Del.

Wartime uses of Cellophane prove its protective value

BELOW is the sulfa drug package found in every soldier's first-aid kit. Note the Cellophane wrap used by the Office of the Surgeon General. Use of Du Pont Cellophane on this and many other medical and food supplies of the armed forces is evidence of its outstanding protective value.

Du Pont Cellophane

DU PONT

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Have you heard about this revolutionary POST-WAR PACKAGE?

WHAT'S its name? It's the SUN TUBE UNITAINER —an individual, single-use package that may supply exactly the post-war punch and personality your product needs.

For the UNITAINER is more than just a container—it's a proven, profitable merchandising help. It's a sales-booster—tried and trusted with demonstrated success before the war.

Such famous nationally-known products as G. Washington's Coffee, Bromo-Seltzer, Vitalis, Mistol and Sal Hepatica have proved in dollars and cents that many an item in a multiple-use package can increase its sales by switching to a single-use container. Yes, these products have shown that the Unitainer can spell profits for drugs, foods, toiletries and household items. For people like Unitainers' simplicity and convenience—and that means sales!

Right now, we are making UNITAINERS for war purposes, but we'll be glad to tell you about them—to explain what they can do for your post-war product. Just call or write our nearest office.

10 Reasons Why You Should Include Unitainers in your Post-War Planning

1. Hold individual, measured amount.
2. Assure against substitution and "counterfeiting."
3. Quickly opened, require no separate opener.
4. Hermetically sealed and non-refillable.
5. Protect against light and heat.
6. Reduce loss due to leaks and breakage.
7. Smart and attractive appearance.
8. Reach the consumer in the original container.
9. Handy to use and completely sanitary.
10. Offer excellent means for sampling.

UNITAINER proves perfect package for instant coffee!
Customers instantly like the convenience of Unitainers for G. Washington's Instant Coffee! Sanitary and hermetically sealed, Unitainers protect this famous coffee from moisture, the product's worst enemy, and give drinkers rich, flavorful coffee every time.

SUN TUBE UNITAINER

PRODUCT OF SUN TUBE CORPORATION • HILLSIDE 5, N. J.

CHICAGO 1, ILL.
James L. Coffield, Jr.
360 No. Michigan Avenue

ST. LOUIS 1, MO.
M. P. Yates
706 Chestnut Street

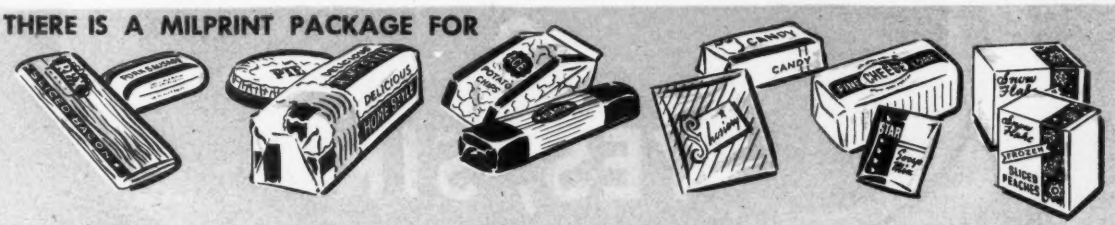
ST. PAUL 1, MINN.
Alexander Seymour
903 Pioneer Building

LOS ANGELES 27, CALIF.
R. G. F. Byington
1260 North Western Ave.

COMPETITION is just around the corner

Not just "back to normal" competition but the keenest, most potent competition American business has ever experienced. It represents a challenge, which will demand the utmost in ingenuity, initiative and the fullest use of every known merchandising weapon. ★ In terms of the job still to be done . . . the planning, organizing and readjustments necessary . . . the time remaining is all too short. ★ One such job that we can help you with now is to plan your postwar packages . . . dynamic, attention-compelling packages, designed not only to protect but to SELL merchandise under competitive conditions. A consultation entails no obligation.

THERE IS A MILPRINT PACKAGE FOR



BACON SMOKED HAMS SAUSAGE | BREAD PIES CAKE | SPAGHETTI & MACARONI PRODUCTS | CANDY BARS CONFECTIONS TEXTILES | DEHYDRATED FOODS SOUPS | QUICK FROZEN FOODS

Printed Cellophane, Pliofilm, Glassine, Aluminum Foil, Coated and Laminated Papers in all forms including Sheet Wraps, Rolls, Pouches or Specialty Bags. • Revelation Bread Wraps, Specialty Folding and Window Cartons, Counter Displays, Simplex Pie and Cake Units.

MILPRINT Inc.

PACKAGING CONVERTERS • PRINTERS • LITHOGRAPHERS

PLANTS AT
MILWAUKEE
PHILADELPHIA
LOS ANGELES

SALES OFFICES IN — SAN FRANCISCO • CHICAGO
NEW YORK • PHILADELPHIA • LOS ANGELES
BOSTON • ATLANTA • ST LOUIS • MINNEAPOLIS
CLEVELAND • CINCINNATI • PITTSBURGH
DALLAS • INDIANAPOLIS • GRAND RAPIDS

SPECIALISTS IN NON-RIGID PACKAGE DESIGN AND DEVELOPMENT

Duraglas
OU CAN SELL IT
BETTER
IN GLASS
Can a war
restriction
be a real
improvement
?
YES, SIR

★

AT FIRST THOUGHT, having to give up a specially shaped container because of war restrictions, seemed like a serious blow to the sales prospects of a packaged product. *But it really produced unexpected benefits.*

Distinctive labels maintained brand individuality.

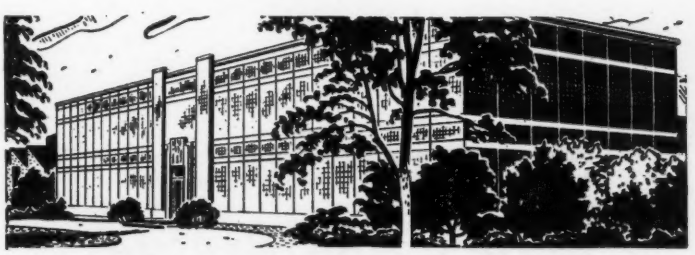
Five kinds of savings were made in production . . . four in wholesaling . . . five in retailing . . . and three to the consumer. That is what was revealed in a Duraglas Customer Service comparison of costs in one instance.

Not every change-over forced by wartime restrictions showed the same advantages, or in the same amounts. But as the full possibilities of mass-production economies begin to show up on Profit and Loss Statements, it appears that many buyers of jars and bottles will make the use of standard containers part of their post-war plans . . . use the savings in production to make more sales when selling begins again . . . after the war ends.

To help Owens-Illinois customers prepare for the future, DCS adds four distinct values to Duraglas Containers: (1) Quality Control, (2) Packaging Research, (3) National Advertising, (4) Merchandising and Sales Promotion . . . as only Owens-Illinois has developed such services for glass containers.

Tune In—"Broadway Matinee," Mondays through Fridays, CBS, 4 P.M., Eastern War Time, with ALFRED DRAKE, star of the Theatre Guild's musical hit, "Oklahoma!"

OWENS-ILLINOIS GLASS COMPANY
TOLEDO, OHIO



1. America's most completely equipped container research laboratories—located at Toledo, Ohio and San Francisco, California.

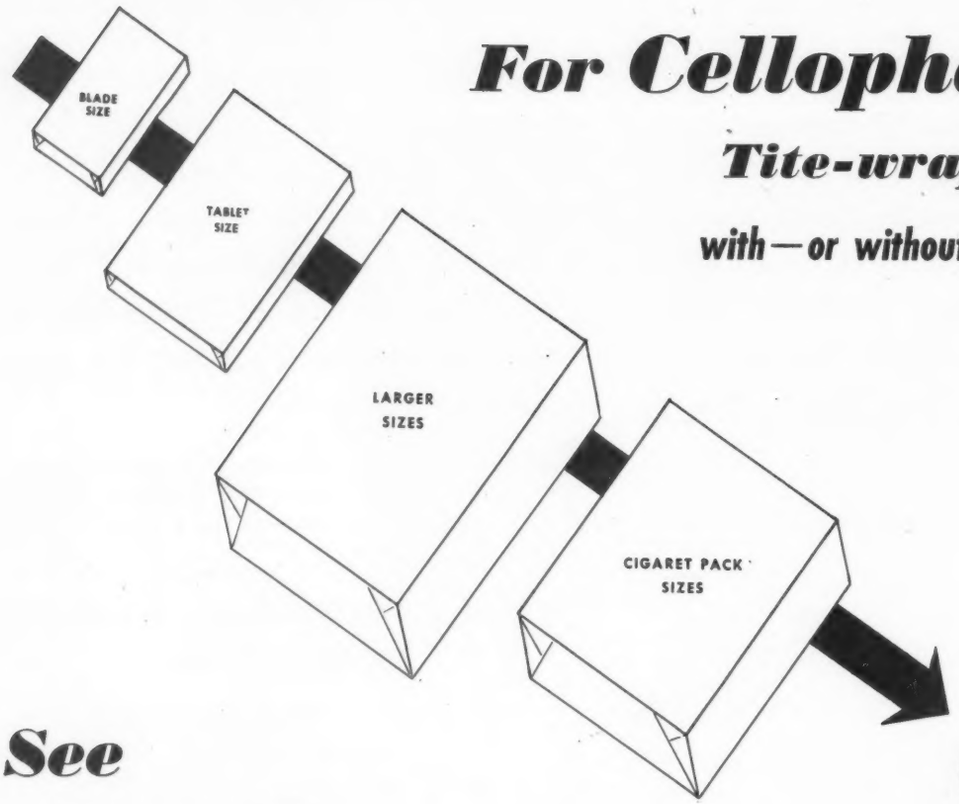
2. The "know how" resulting from more products going to market in Duraglas containers than in any other brand of glass.

3. Twenty strategically located plants with the most modern production facilities.

4. Duraglas Customer Service from the production line to the consumer's mind. Quality Control . . . Packaging Research . . . Merchandising and Sales Promotion . . . National Advertising in leading magazines reaching millions of men and women . . . "Broadway Matinee," complete Columbia Coast-to-Coast Network—Five times a week—

All designed to help you sell your products in Duraglas containers.

Duraglas
TRADE MARK REG. U.S. PAT. OFF.
CUSTOMER SERVICE



For Cellophane

Tite-wraps . . .

with—or without TEAR-STRIPS—

UP TO 350 per minute!

See Scandia—

before you decide . . .

If YOU Have A "Packaging Problem"

For 26 years we have been instrumental in designing and supplying Special Performance machines to meet and overcome excessive production cost, or achieve stepped-up capacity. Call Scandia—for proof and for discussion.

THERE IS A STANDARD SCANDIA* UNIT FOR A WIDE RANGE OF PRODUCTS . . .

ANYTHING that needs the protection of tight, cellophane wrapping, or the product-prestige of transparent moisture-proof cellophane . . . if produced in volume, can be wrapped the snug, secure *Scandia* way. Machines for this type of work are widely used. *Inquire about them, NOW!*

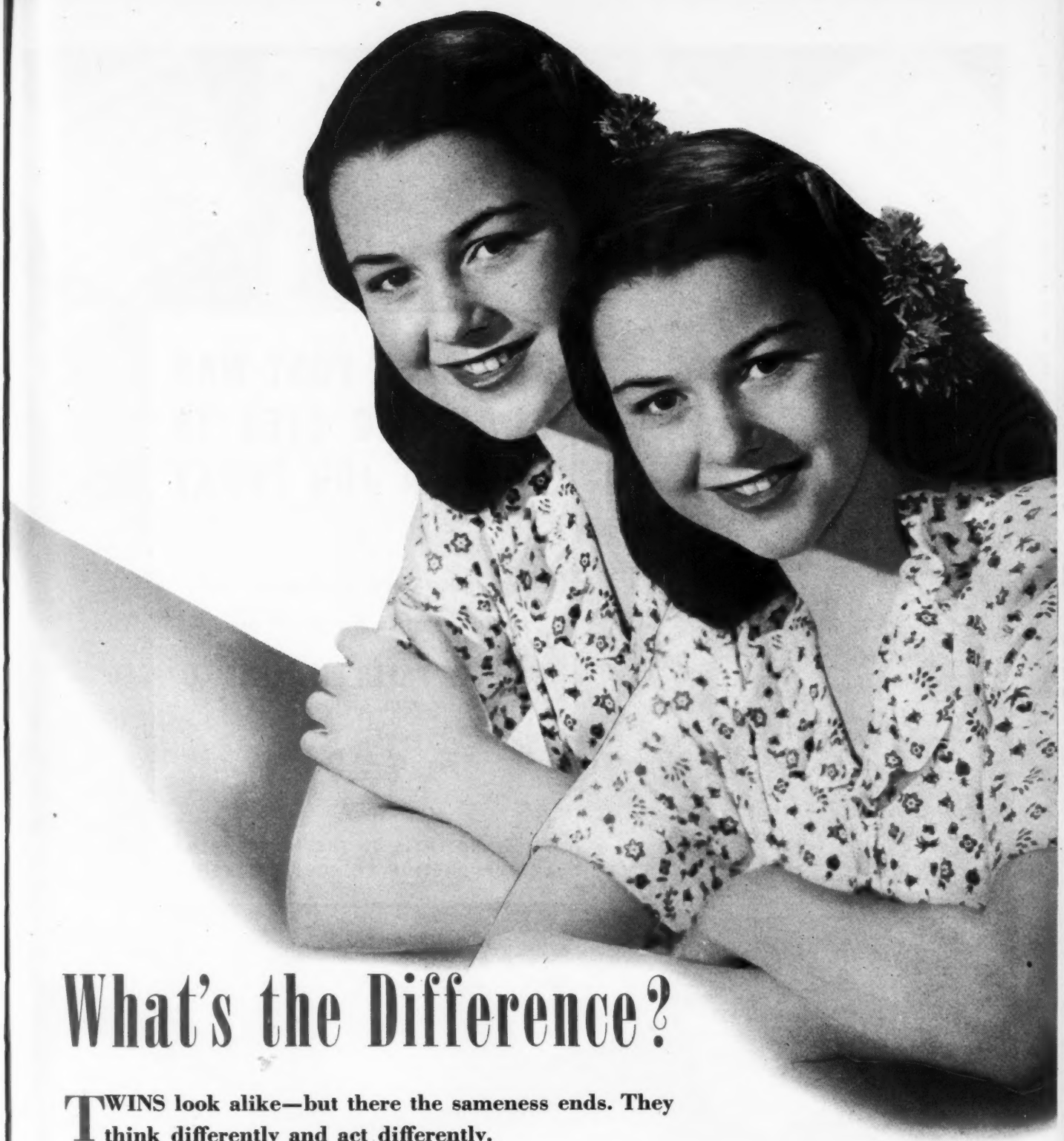
Or course—we are still doing vital War Work, but it isn't too early to get data for post-war packaging problems . . .

* Manufactured under Bronander Patents.

Ask for details! Our Packaging Engineers are at your service.

Scandia MANUFACTURING CO.

NORTH ARLINGTON NEW JERSEY



What's the Difference?

TWINS look alike—but there the sameness ends. They think differently and act differently.

Standardized glass containers look alike too. But at Hazel-Atlas, standardization ends with the shape of the container.

Pride of manufacture, high standards of quality and personal service to meet each packer's specific needs are the unseen elements in every H-A jar.

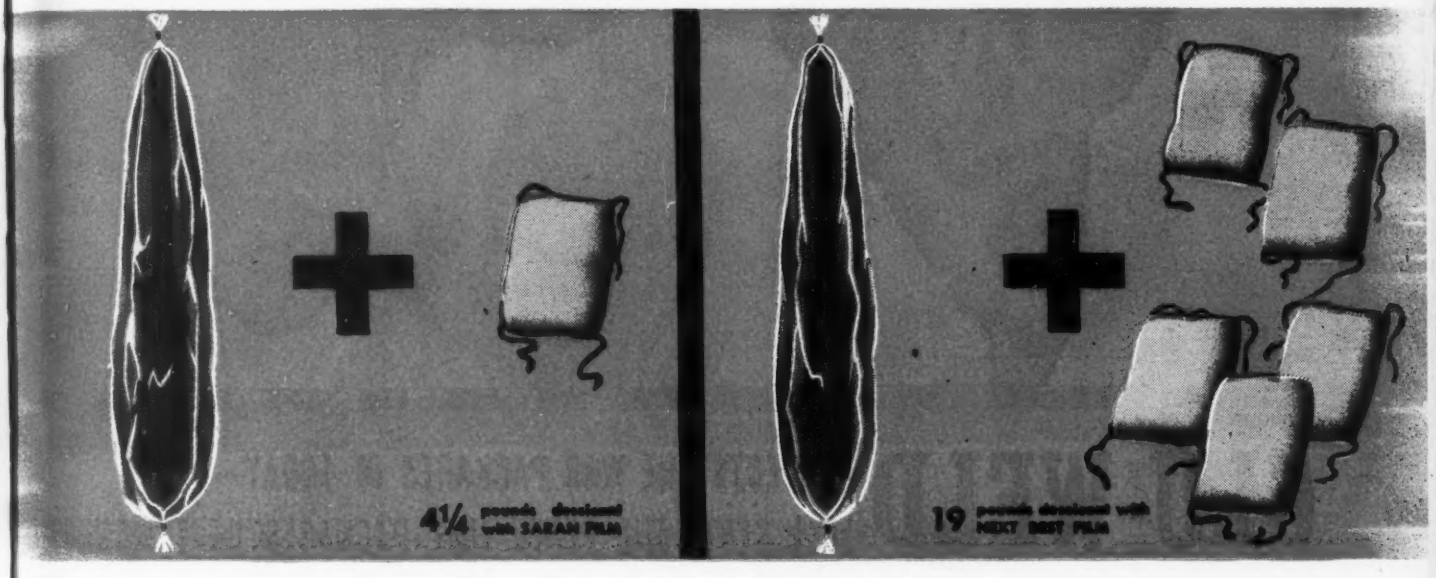
HAZEL-ATLAS GLASS COMPANY

WHEELING, WEST VIRGINIA

SECOND HALF OF 5 RATIONS
Dinner
WHOLE WHEAT and Rice PRESSURIZED CEREAL
U. S. ARMY FIELD RATION K (Without Meat) DINNER - Menu No. 4
SPRAY DRIED WHOLE EGG
U. S. ARMY FIELD RATION K BREAKFAST UNIT
NATIONAL HOUSEHOLD MILK
V3s
PURE DRIED WHOLE EGGS
PILLSBURY'S DEHYDRATED INSTANT COOKING GREEN PEA SOUP MIX
12 RATIONS K S
THE BEST POST-WAR PLANNING LIES IN DOING A JOB TODAY
★
To these war packages we proudly affix the label of...
WALDORF PAPER PRODUCTS CO.
ST. PAUL, MINNESOTA
WHOSE BUSINESS IS THE DEVELOPMENT AND PRODUCTION OF GOOD PACKAGING
U. S. ARMY FIELD RATION K DINNER MENU 1
PACKAGED BY THE CRACKER JACK CO. CHICAGO, ILLINOIS
U. S. ARMY FIELD RATION K DINNER MENU 2
PACKAGED BY THE CRACKER JACK CO. CHICAGO, ILLINOIS
V2s
C-T
U. S. NAVY AIRCRAFT EMERGENCY RATION K
PACKED AUGUST 1943 BY THE CRACKER JACK CO. CHICAGO, ILL.
PRESERVED BUTTER
V2s
U. S. ARMY FIELD RATION K DINNER UNIT
Breakfast
RATION TYPE K
U. S. ARMY FIELD RATION K (Without Meat) DINNER - Menu No. 5
20 CARTRIDGES TRACER CALIBER .30 M1
U. S. ARMY FIELD RATION K SUPPER UNIT
U. S. ARMY FIELD RATION K (Without Meat) DINNER - Menu No. 2
DRY POWDERED SOUP
Supper
RATION TYPE K
DRIED WHOLE EGGS
THIS CASE IS THE PROPERTY OF THE MINISTRY OF FOOD AND MUST BE RETURNED TO PAPER SALVAGE AND NOT USED FOR OTHER PURPOSES

Just how moisture-proof is Saran Film?

Saran Film is *three times more impervious to moisture* than any other comparable material . . . Look at these facts



No transparent film completely controls *all* moisture. But different materials do vary in *degree* of efficiency. Knowledge of the extent of this difference is important to the packaging industry.

Saran Film, for example, is outstanding in its ability to "keep moisture in its place" . . . and to do so over a longer period than other comparable materials. In the painstaking search for the best film to protect machine guns, every known type of transparent barrier was tested for its MVT rate. Results proved Saran Film exceptional. As symbolized in the illustration above, it requires only 4¼ pounds of desiccant for 36 weeks' absolute protection.

This is but one standard of comparison for Saran Film. Others show it to be extra tough, flexible, clearly transparent, with good lasting qualities. Saran Film is thoroughly qualified to give adequate protection under the most difficult circumstances.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago
St. Louis • Houston • San Francisco • Los Angeles • Seattle

DOW PACKAGING PRODUCTS INCLUDE—*SARAN FILM* • *STRIPCOAT* • *ETHOCEL SHEETING*

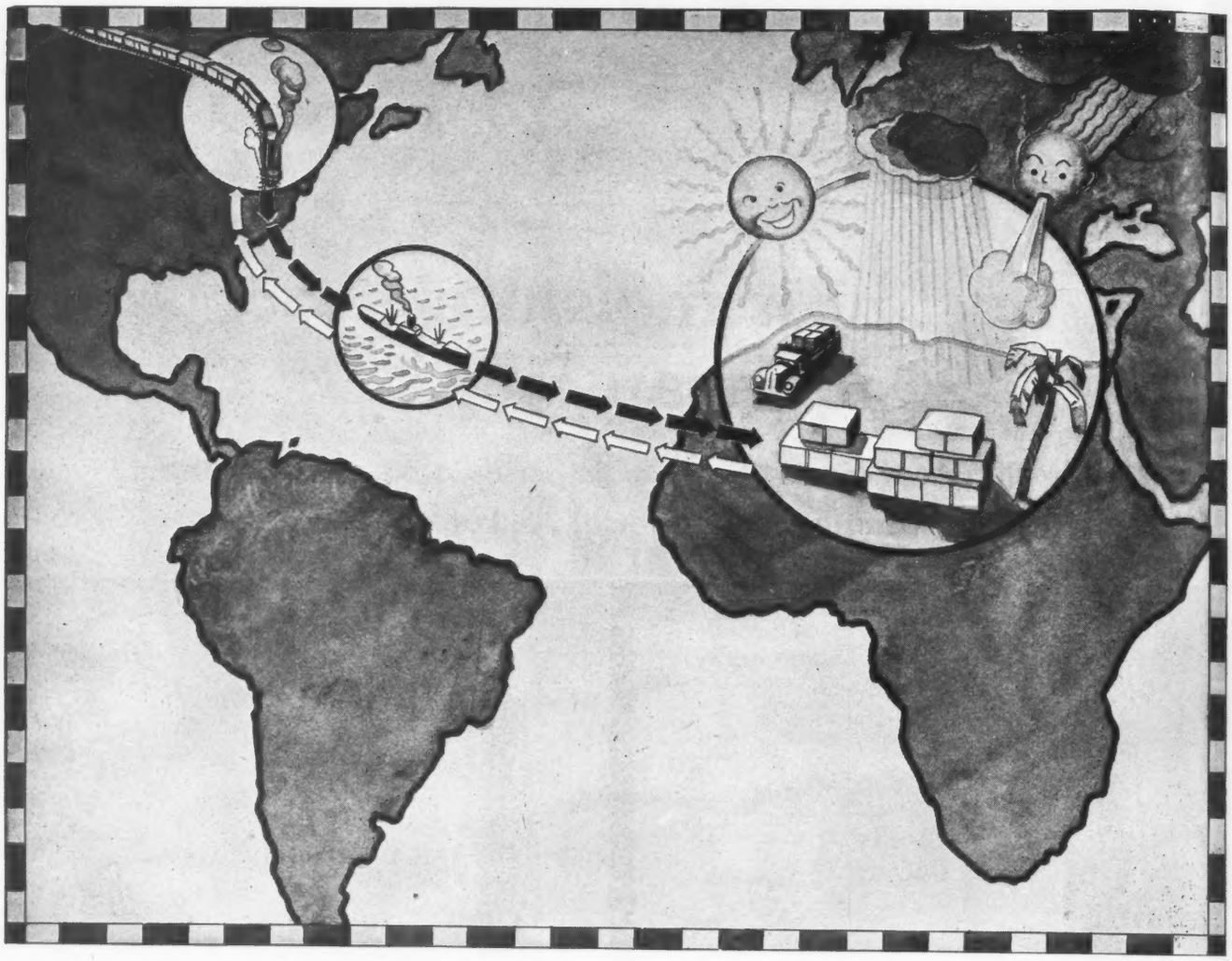
Saran film

KEEPS MOISTURE IN ITS PLACE

DOW

CHEMICALS PLASTICS MAGNESIUM

INDISPENSABLE TO INDUSTRY AND VICTORY



GLU-WELD PROTECTS THE WAR PACKAGES OF TODAY— WILL SERVE THE PEACE-TIME PACKAGES OF TOMORROW

The following statement by a spokesman of a U. S. Government arsenal speaks for itself:

"We recently had returned to us from the African theater a shipment of materiel that we had sent across some time ago. All of this materiel had been packaged in our Field Service Warehouse. Examination of the packaging of the materiel showed that despite the rough handling involved in shipment by rail to a port of embarkation; shipment by sea; the carrying inland of the containers by truck; and despite the extreme weather conditions to which the packages were submitted in outdoor storage, as well as the same conditions upon the return trip, the waterproof bag liners whose closures had been effected with the use of this Glu-Weld adhesive were in perfect condition."

Glu-Weld does not make a perfect package out of a poorly designed or assembled container. The use of Glu-Weld will however make a superior package out of a good one. In the above case the care and designing and assembling of the package gave it the structural strength necessary to complete its hard journey. The use of proven waterproof papers and Glu-Weld gave the package protection for the materiel shipped overseas.

Write today for full information about GLU-WELD

IN THE MIDWEST

The F. G. Findley Company

1230 NO. 10th STREET • MILWAUKEE 5, WIS.

IN THE EAST

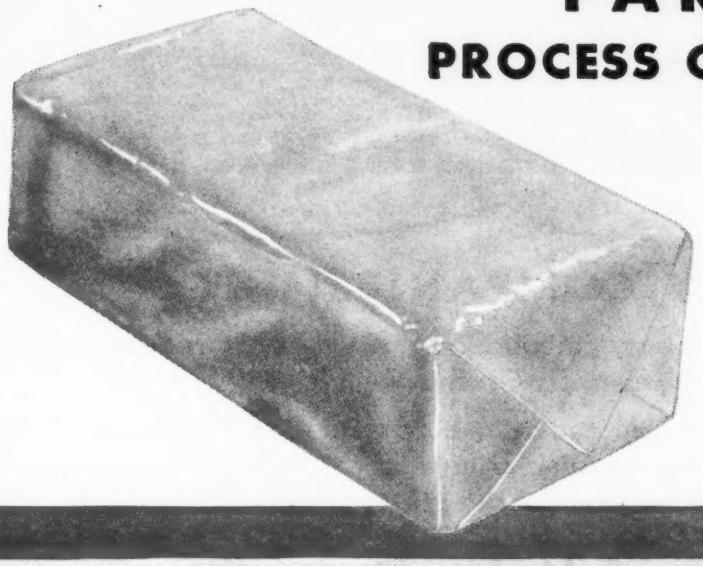
Union Paste Company

1605 HYDE PARK AVENUE • HYDE PARK 36, MASS.

ADVERTISEMENT No. 4 OF A SERIES DEMONSTRATING THE DIVERSIFIED RANGE OF PACKAGING MATERIALS USED BY MENASHA TO RENDER A

Complete Packaging Service

"PARAKOTE"
PROCESS CHEESE WRAPPER

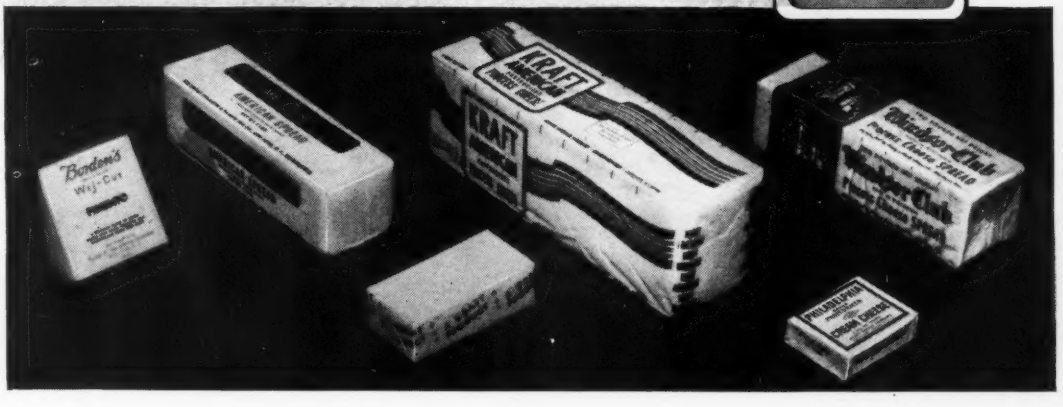


The first process cheese wrapper to combine thorough protection with the merchandising advantage of complete transparency was the PARAKOTE PROCESS CHEESE WRAPPER created by Menasha five years ago. Adopted and put to commercial use by several of the country's leading cheese processors, the wrapper has efficiently carried many millions of pounds of cheese over fast production lines having rigid filling and closure requirements, and delivered it safely and in appetizing condition to millions of American homes.

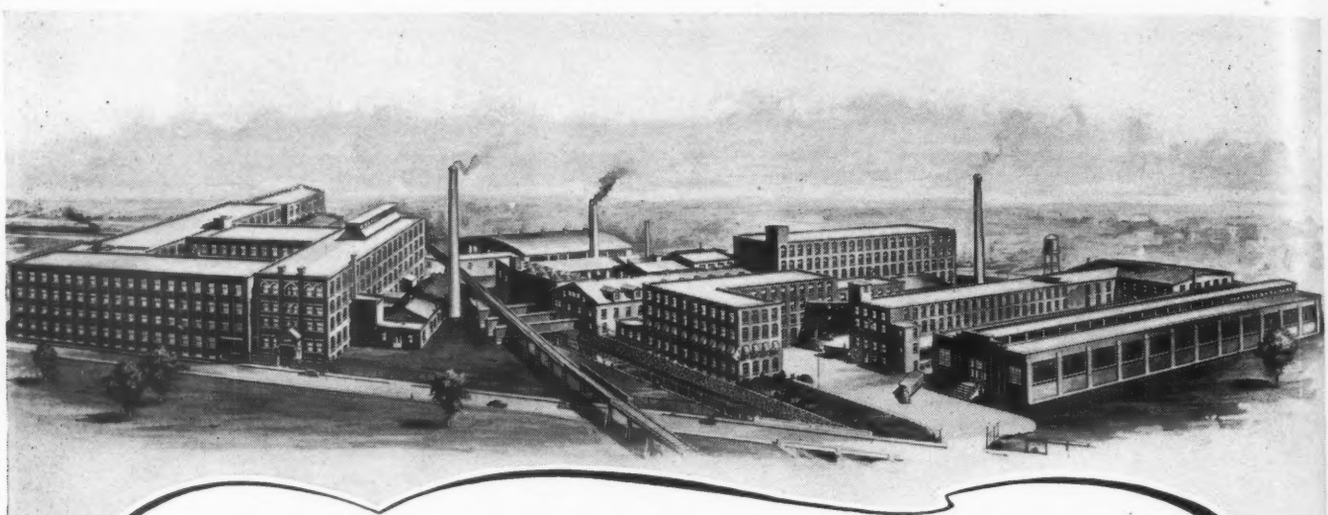
AT MENASHA THE PACKAGE IS BUILT FOR THE JOB

THE MENASHA PRODUCTS CO • MENASHA, WIS.

Division of Marathon Paper Mills Co.



Another example of a Menasha package "built for the job." You will find similar examples in use by many branches of the food industries. No obligation to you is involved in our study of your particular problem and recommendations for its solution.



A New Name for a Very Old Yankee Manufacturer

WATERBURY COMPANIES, INC.

KNOWN for many years as The Waterbury Button Company, this 132 year old Connecticut manufacturer has changed its name, to Waterbury Companies, Inc.

While button manufacturing is and will continue to be a division of this Company, it is nevertheless but one of six separate divisions manufacturing a great diversity of products. Thus time and change have brought about a need for a new name.

WC INC 1812

PLASTIC MOLDING
PLASTIC LIGHTING FIXTURES
METAL SUNDRIES
EYELETS
UNIFORM & DRESS BUTTONS

Our Engineers and Designers will work with you

A Modern Plant with the Equipment and Facilities for Volume Production

Today Waterbury Companies, Inc., is manufacturing thousands of plastic and metal products, most of which are identified with the war effort. Its modern and efficient plant is fully equipped for volume production.

Although largely engaged in essential war work, we are thinking about reconversion to peacetime production. Our engineers and designers will gladly plan with firms who are looking for a dependable source of plastic and metal products.

BUY MORE WAR BONDS

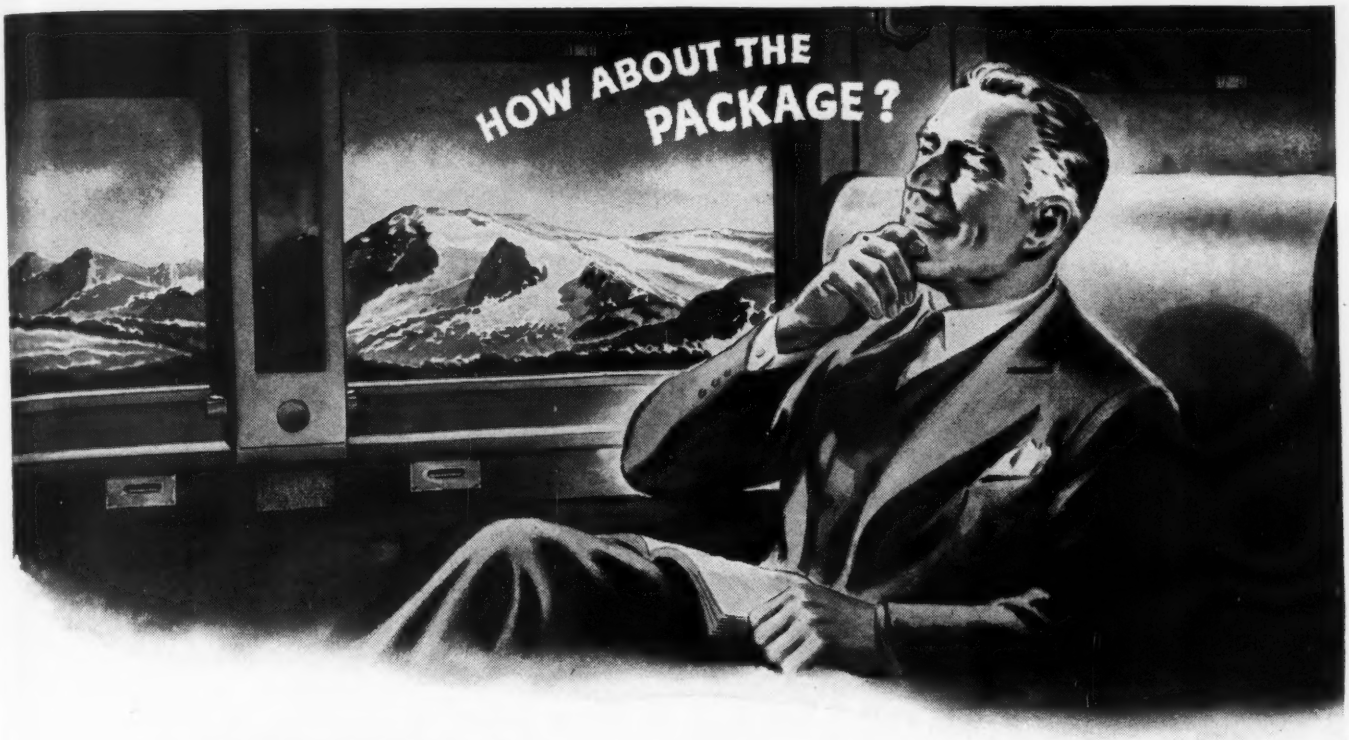
SOCIETY OF THE PLASTICS INDUSTRY · SPI

HASTEN VICTORY

WATERBURY COMPANIES, INC.

Established 1812 • Department J

WATERBURY • CONNECTICUT



HAVE YOU A "Let's-do-it-better" MAN?

DOBECKMUN PACKAGING SPECIALTIES

Package design—the right combination of material, shape and design to provide protection, attractiveness and utility.

Cellophane bags—from ounces to gallons; printed or plain; single or duplex; flats, squares or satchels.

"Tritect" cellophane—wax-laminated film for extra protection, in rolls, sheets or bags.

"Metalam"—heat-sealing aluminum foil permanently bonded to tough film, to give your product positive protection.

Printed films and foils—in sheets and rolls.

Laboratory testing—complete facilities for pretesting packages under all conditions of climate and service, to insure the right answer in advance.

Tritect and *Metalam* are trademarks of The Dobeckmun Company.

If you have a man in your organization who is charged with developing new products . . . don't let him forget about the *package*.

While he's dreaming up a new gadget or a mouth-watering food, remember you must get it to market and sell it. That means that first you must protect every good thing about the product . . . and then you must picture those advantages to the customer, on the package.

Here at Dobeckmun, we can help you on both points. During the war, we've done some mighty strange things with packages to protect their contents against all sorts of hazards. And for years past, we've been creating packages with that "come and get me" look that makes them sell.

So, while you're dreaming, take time for your packaging. We'll be glad to help you. We can't promise deliveries right now, but we can get started on design and testing so that you'll be ready when the time comes. We'd like to work with you.

CONVERTERS—PRINTERS—LAMINATORS of films and foils

THE DOBECKMUN COMPANY

CLEVELAND 13, OHIO

WESTERN SALES HEADQUARTERS • SAN FRANCISCO

2 TONS
RECLAIMED
WASTE PAPER
PRODUCES ABOUT
3 TONS
NEW PAPER

Without your help

in salvaging PAPER WASTE the paper industry faces a critical situation. Our paper mill can turn this waste material into paper that will pack a war punch. Anything you can do to help at this time is also to your personal advantage. Your cooperation is greatly needed to ease this serious shortage of paper.

CONSERVE TO SERVE

★ Fitchburg Paper Company ★

250 PARK AVENUE, NEW YORK CITY Mills: FITCHBURG, MASSACHUSETTS 11 SOUTH LASALLE STREET, CHICAGO

EVERY GOOD PRODUCT DESERVES THIS ADDED PROTECTION

—and many can have it now

GOOD merchandising and conservation both dictate the wisdom of guarding product quality.

CEL-O-SEAL cellulose bands form a positive seal between bottles and primary closures of many types . . . paper, porcelain, plastic, glass, metal, rubber and cork. The bands forestall sampling and substitution. They effectively guard against evaporation and leakage and give added protection to flavor, strength and quality.

WIND-O-BAND seals . . . a type of CEL-O-SEAL band . . . have "transparent windows" that allow a clear view of tax stamps. The seals hold the stamps firmly in place even after bottles are opened.

Shown here are a few examples in food, drug, distilled spirits and wine classifications. Write for complete information regarding CEL-O-SEAL bands and WIND-O-BAND seals.

CEL-O-SEAL bands and WIND-O-BAND seals are sold by:

E. I. du Pont de Nemours & Co. (Inc.),
"Cel-O-Seal" Section, Empire State Bldg., New York City 1

Armstrong Cork Co., Glass & Closure Division, Lancaster, Pa.

I. F. Schnier Co., 683 Bryant Street, San Francisco 7, Calif.

DU PONT

CEL-O-SEAL BANDS
TRADE • MARK

WIND-O-BAND SEALS
TRADE MARK

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

WHEN YOU CHECK UP ON YOUR PLANT'S PAY-ROLL SAVINGS PLAN FIGURES!

These days, things change with astonishing speed. The Pay-Roll Savings Plan set-up that appeared to be an outstanding job a short time ago, may be less than satisfactory today.

How about checking up on the situation in *your* plant? Checking up to see if everybody is playing his, or her, part to the full measure of his, or her, ability. Checking up to see if 'multiple-salary-families' are setting correspondingly multiple-savings records.

A number of other groups may need attention. For example, workers who have come in since your plant's last concerted bond effort. Or, those who have been advanced in position and pay, but who may not have advanced their bond buying accordingly. Or even those few who have never taken part in the plan at all. A little planned selling may step contributions up materially.

But your job isn't finished, even when you've jacked participation in your Pay-Roll Savings Plan up to the very top. You've still got a job before you—and a big one! It's the task of educating your workers to the necessity of not only buying bonds, but of *holding* them. Of teaching your people that a bond sold before full maturity is a bond robbed of its chance to return its full value to its owner—or to his country!

So won't you start *checking* . . . and *teaching* . . . today?

War Bonds To Have And To Hold!

LET'S ALL BACK THE ATTACK WITH WAR BONDS!

The Treasury Department acknowledges with appreciation the publication of this message by

MODERN PACKAGING

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council

Streamlined trains and modern kitchen ranges are not "objects of art." But—relative to old style trains and ranges—they are beautiful.

Their beauty is functional—and extremely practical. It gets extra fares for the railroads; and for stove manufacturers—sales.

In tooth brushes, washing machines, electric irons and refrigerators, no less than in cars and radios, beauty is a force that moves people to favor one product over others of its class.

That's why these products advance—by successive redesignings—from crude beginnings to ever greater symmetry, grace of line, proportion, attractiveness of color and finish. Beauty, as their manufacturers know, SELLS!

And the beauty of a simple package, *strikingly designed* (Ritchie has proved again and again) no less than the beauty of a fancy one—helps a product sell.

That is why in EVERY Package by Ritchie—whether it contains a cosmetic or industrial taps—you will always find, in its lines, in its proportions, color or general design, a strong eye-pleasing quality . . . elements of beauty!

HOW TO KEEP PACE WITH SPEEDED PACKAGE PROGRESS

Many a good pre-war package is already obsolete. Vastly improved materials, methods and machinery have not only simplified problems of structure, production and cost, but have brought new conceptions of design—for quality-impression, for eye-appeal, for *beauty* that SELLS. Call on Ritchie for help on *any* package problem—to lower production costs of your present package, to improve its design, or to create a new, better-selling package. Write us today.

W. C. Ritchie AND COMPANY

8844 BALTIMORE AVENUE · CHICAGO 17

Set-Up Paper Boxes • Fibre Cans • Transparent Packages

NEW YORK • DETROIT • LOS ANGELES • ST. LOUIS • MINNEAPOLIS

...THANKS, BRIGHT STAR!

MY BATTERIES GOT HERE

ALL SET FOR WALKIE-TALKIE

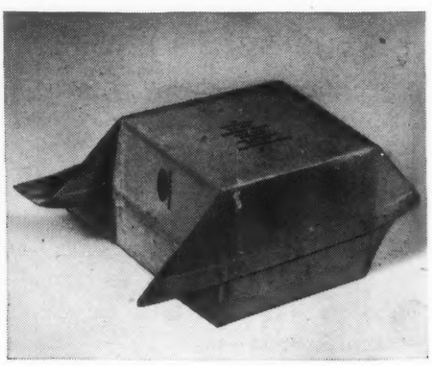
Dry cell batteries are the life blood of communication for our Armed Forces everywhere — especially where no other source of power is available. So — *they must get through to all fronts* — through cold and heat and rain and sea water and humidity — ready to spark the voice of Victory.

The Bright Star Battery Company of New Jersey found that ordinary packaging absorbed dampness which knocked their efficient batteries out of commission when it hit the terminals. And *that* meant loss of lives and battles.

They found the answer in the U. S. E. - metal foil heat-sealing bag, which is carrying many other war-vital products through, fit for fighting. This unique product combines lightness, ruggedness, shock protection and absolute water-vapor-moisture-proofness. Its use in battery packaging is illustrated.

The Bright Star Dry Cell Batteries are packed in a strong (corrugated) paper box in the usual way, and the package is placed in the U.S.E.-metal foil bag.

The metal foil bag is then heat-sealed — tighter than any drum — and the Bright Star Batteries are set to travel to any scene of action — and be ready for action.



The bag's water-vapor-moisture-proofness and ruggedness are made possible by dense Kraft paper, asphaltum compound, solid alloyed lead foil and the heat-sealing transparent film.

UNITED STATES ENVELOPE CO.
General Offices
SPRINGFIELD 2, MASSACHUSETTS

U·S·E *protective packaging*

Products of United States Envelope Company include WAR PRODUCT PACKAGING • TRANSPARENT CONTAINERS • ENVELOPES
WRITING PAPER • LINWEAVE PAPERS • NOTE BOOKS • PAPER CUPS • TOILET TISSUE • PAPER TOWELS

THE FRUITS OF LABOR

Among the most welcome by-products that grow out of our efforts to meet the diversified needs of our clients are the letters received expressing appreciation of the service we have rendered.

Within the files of Carr-Lowrey you will find a substantial yield of such paragraphs.

Motivated entirely by feelings of gratitude, such letters are an encouraging endorsement of our belief in the idea that there are few problems which cannot be solved through patient, painstaking endeavor.

If you are a manufacturer of drugs, cosmetics, foods or household products, and if glass containers are included in your plans for harvesting a bumper crop of post-war customers, you may be interested to learn that another idea to which we are firmly addicted is this: That one little patch of performance is better than an entire acre of promise.

CARR-LOWREY GLASS CO.

Factory and Main Office: BALTIMORE, MD. *New York Office:* 500 FIFTH AVE. *Chicago Office:* 1502 MERCHANDISE MART

A little boy's dream of the future is packed with wonderful things. We, of the Sefton Fibre Can Co., are working day and night to make that dream come true. Being realists, we've set aside our dreaming and are curefully planning what we're going to do for you, our customers, when tomorrow comes. We're studying new ways to solve your package problems . . . so that your wish for a DIFFERENT package will come true!

SEFTON

FIBRE CAN COMPANY

ST. LOUIS ····· NEW ORLEANS

THE PACKAGE OF TOMORROW

DISTRICT OFFICES: Los Angeles San Francisco Denver Tampa Chicago Des Moines New Orleans Boston Detroit Kansas City St. Paul Omaha New York Cincinnatti Cleveland Oklahoma City Pittsburgh Memphis Nashville Dallas Houston Salt Lake City Seattle

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

BONDERIZED Sheet Steel

MAKES A BETTER METAL PACKAGE

There is no substitute for steel in the packaging of a wide variety of drug store, grocery and general products. Now, in Bonderized sheet steel, an even better packaging material will be available.

To steel's superiority for handling, shipping and stocking, are added the rust-resistance and paint-holding qualities of Bonderizing. Bonderized sheet steel is easily formed, retains the original fresh, bright selling appearance on the store shelf. Its rust-resisting qualities mean the contents will be kept in top condition from factory to consumer.

Bonderized sheet steel cans are already protecting essential products. Bonderized sheet steel will be equally economical and effective in less critical uses.

Bonderized Sheet Steel can be fabricated and formed into almost any of the standard containers, and provides an ideal base for decorative organic finishes.

PARKER RUST PROOF COMPANY

2187 E. MILWAUKEE AVE. • DETROIT 11, MICHIGAN

BONDERIZING • PARKERIZING • PARCO LUBRIZING

HOLDS PAINT TO STEEL — PREVENTS RUST — RETARDS WEAR

PARKER PRODUCTS CONQUER RUST

PAPER PROCESSED TO A PURPOSE*

PRINTED CELLOPHANE
— fully transparent, strong. Displays the product and enhances its attractiveness through special processes of color printing, all-over coverage, unusual effects. A safe and effective wrapper for many products including meats, bakery specialties, delicately colored fabrics, cosmetics, etc.

CREATORS · CHEMISTS · CRAFTSMEN
NASHUA
MAKES PAPER MAKE MONEY FOR YOU

NASHUA GUMMED AND COATED PAPER COMPANY, NASHUA, N

* SPECIALISTS IN MODERN PACKAGING MATERIA

MODERN PACKAGING
VOLUME 17 MAY, 1944 NUMBER 9

Contains added VITAMIN B1
Pillsbury's ENRICHED FARINA
A CREAMY-WHITE WHEAT CEREAL FOR THE WHOLE FAMILY
NET WT. 1¾ POUNDS
PILLSBURY
ENRICHED
farina
A Creamy-White Wheat Cereal for BABY and the WHOLE FAMILY
Contains two added B VITAMINS and IRON

Old Pillsbury package on left, new on right. Note identifying symbol for family resemblance which is also carried out in the other packages illustrated on the panels of pages 66 and 67.

Pillsbury redesigns

There is news and significance for the packaging world in the fact that one of America's largest manufacturers of cereal products has chosen this particular time to bring out a new family of packages. Why this change was deemed advisable, the steps taken toward achieving it and how it finally was effected are revealed here for the first time.

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The packages in use had grown—or rather evolved— without plan or system. New elements had been added until some of the packages were a hodge-podge of "musts"—the whirligig or mill-wheel device in red-and-white on the upper part of the design, the name of the company in fairly large letters as an identifying symbol, pictures of the products in use, a picture of a baby on the Farina package (which was new when it was adopted but commonplace on today's packages of baby foods).

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At the time of correcting these shortcomings, attention could also be given to the simplification and standardization of the packages. The management felt that there was no need for a change in the methods of filling the packages. It was decided to retain the shells and the same tight-wrap packages that had been in use, and to change only the external coverings—the outer boxes, and, in the case of certain flour products, the bags. Advantage should also be taken of the opportunity to reduce the number of sizes of packages. As a result, Snosheen, the cake flour, and pancake flour are now both available in $3^1/_2$-lb. cartons. This standardization of size and shape facilitates filling operations.

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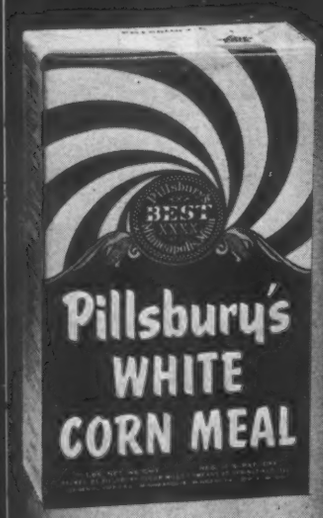

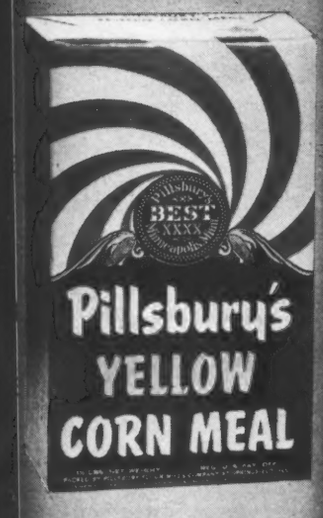

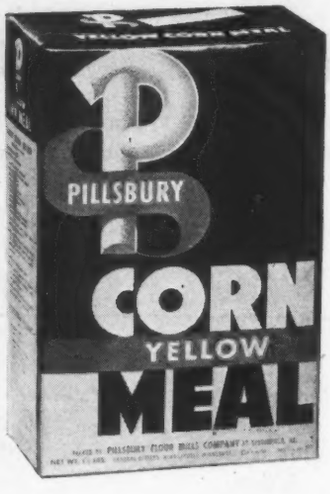

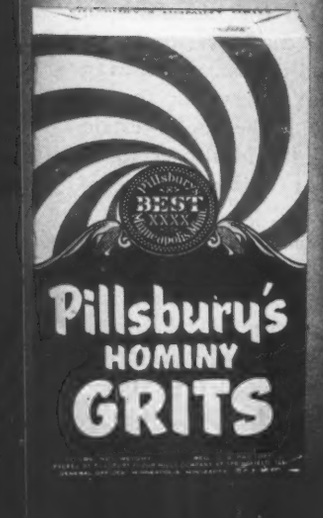

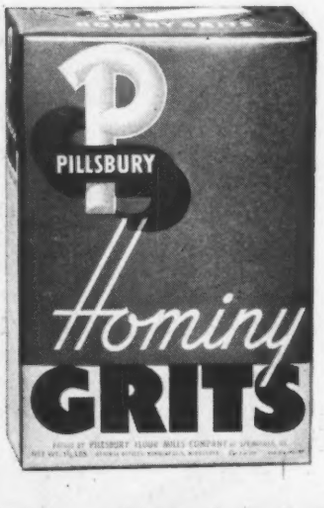

Pillsbury, that individual acting as a kind of central clearing bureau and spokesman for all departments interested in the packaging project.

The decision of a large and well-established organization to sacrifice the recognition value of packages that have been in use for many years is not made lightly. A heavy responsibility rests upon the shoulders of the designer entrusted with the task of creating a new set of packages to replace the ones that are, in a sense, hallowed by tradition and use. In attacking the assignment the problem was divided into parts, according to the objectives to be attained. Some of the objectives overlapped to a degree, but generally speaking, they were as follows:

Adoption of an identification symbol, to be used on all packages, and also as a trademark in Pillsbury advertising. This symbol was to aid in welding the products into a family group.

Improving the appearance of the packages, through design, elimination of unnecessary elements, effective use of color and lettering.

Improving the convenience features of the packages, for both dealer and consumer.

Facilitating the mechanical production of the labels, so that *any* printer could handle the work, regardless of stock, and under high-speed conditions.

The items to be repackaged were: Snosheen, a cake flour; Enriched Farina; Pancake Flour; Buckwheat Pancake Flour; White Corn Meal; Yellow Corn Meal, and Hominy Grits.

Careful consideration went into the creating of an identifying symbol, because upon it would rest most of the burden of improving the appearance of the packages, as well as the task of unifying them into a family. It must be the type of device which would be equally effective in large or small scale—if shown in massive proportions on a billboard, or in miniature, as part of a newspaper advertisement. It must be recognizable at a distance, perhaps high on a dealer's shelf. It must be distinctive, yet simple enough in outline to facilitate reproduction by any process, and on any stock—coated stock, Kraft bag, or even a corrugated board shipping container. It must lend itself to reproduction in two or more colors, yet not depend upon color for its effectiveness.

The design chosen for this many-purpose job was a capital "P" with a swirl crossing the staff of the letter, the letter itself to be executed in pale gray (shaded to produce an embossed effect), with the swirl in one of the contrasting colors of the packages. The design appears on all six sides of every package, no matter what the product.

This identifying symbol serves another purpose, the swirl bisecting it forming a background name-plate for the word *Pillsbury*. By means of this treatment, the value of the tradition and prestige of the name is retained, but without the disturbing effect the word had on the old package because of its length, and because it was one of too many elements. The dropping of the apostrophe and the final *s*, which had appeared on the old packages, brought the length of the name down to more manageable proportions.

It will be noted that this design appears prominently on the front of each package, very prominently—except in the case of Snosheen, where it is subordinate to the name of the product. This was done purposely. Snosheen, alone among Pillsbury products, has been featured as an entity, while the others have been promoted primarily as Pillsbury products. In other words, it was taken into consideration in designing the packages that a woman would be likely to buy Pillsbury

(*Page 66*)

Corn Meal or Pancake Flour, *because it is a Pillsbury product;* but, in thinking of Snosheen, she does not think of it primarily as Pillsbury's cake flour (though it is to be hoped that she realizes that Pillsbury manufactures it), but as Snosheen.

Having settled upon a design that would make it easy for grocers and consumers to recognize all Pillsbury packages as belonging to the same family, attention was next focused on the problem of making it easy to tell what specific product was contained in each package. It was decided to use two groups of color combinations for the packages—only two, to simplify the mechanical processes. In one group there are maroon, orange and gray on white stock; and in the other, blue, red, gray on white, the gray being the same for both groups. The first combination was to be used for the Buckwheat Pancake Flour, and the Yellow Corn Meal; and the second for the Pancake Flour, Enriched Farina, White Corn Meal, Hominy Grits and Snosheen. Thus the entire series of package wraps uses only five colors.

From previous experience in color work, the designer knew that by means of using different arrangements of these two combinations, he could obtain the effect of a considerably wider range of colors. In other words, by varying the proportions—and especially the proportions of the larger masses of colors, he would get a diversification of effects. This is noticeable in the contrast between the package for Hominy Grits, which is predominantly red—with touches of blue, and with the same gray and white that are on all the packages —and the package of Farina, which is predominantly blue. Both packages have the same combinations of colors, but this would not be realized from a casual glance.

Still further diversification is obtained through overprinting of red on blue, for example, or blue on red. This device is used as a shadow on the swirls across the "P" symbol, and it gives a shadowy accent to the letters of the words "Snosheen" and "Farina," on the fronts of the cartons. This overprinting produces an effect that is very near black and adds another color, free, to the combination. It also gives a three-dimensional effect. There is, in fact, the same "poster quality" in the treatment of these packages as there is in all of this designer's work, the characteristic being a kind of hallmark.

The effects which could be obtained within these two groups of color combinations are far from exhausted in the packages now in production. There is plenty of room for expansion as new products are added. New arrangements of masses of colors, different balance and overprinting all can serve to furnish designs that will be different from those already in use, yet have the same feeling and fit into the family of packages just introduced.

The list of elements taken into consideration, for the convenience of the dealer and consumer, is a long one. For one thing, the shapes and the designs of the packages are of such nature that the boxes may be stacked easily in any desired arrangement—vertical, horizontal, on sides, ends or backs, with the brand and the contents easily recognizable from any angle. Another convenience feature is the printing of the top of each carton in dark ink (maroon or blue, according to the group). It is the top which normally becomes soiled soonest, and the darker inks are most nearly impervious to finger marks.

Another thing borne in mind in the selection of colors for the different packages was the necessity for preventing confusion in the case of products that would be likely to appear side by side on the shelves. For example, the two kinds of

(*Page 67*)

Back panels of two of the new designs show how they present recipes, cooking and menu pointers. Available space is used to best advantage without giving too much of a feeling of crowding.

Pancake Flour and the two kinds of Corn Meal present this problem. For this reason, the carton for the Buckwheat type of Pancake Flour is predominantly maroon, and the carton for the plain Pancake Flour is predominantly blue. Then we find that the Yellow Corn Meal is in a package that is predominantly maroon, while the white variety is in a package that is mainly blue. Despite these differences, there is a strong family resemblance in the whole line, so that the woman who sees a Pillsbury product with which she is unfamiliar will recognize it at a glance, even though it is in a part of the store at a distance from the section where the Pillsbury products she knows usually are kept.

Considerable thought was given to the subject of what, besides the identifying symbol and the name of the product, should go on each package. Though it was recognized that there is much that would be desirable to put on one label, it was decided to include only what could be clearly seen and read—to make the best possible use of the space without sacrificing attractiveness of appearance or legibility.

On the front of each package, in addition to the identifying "P" symbol and the name of the product, there must be the signature (required by law), specifying ingredients, weight, name of manufacturer. In the case of the Farina package, the "enrichment" story would also be put on the front.

In deciding on the signature, the design aims at having it easily legible, yet not distracting in appearance. Gray ink was chosen for this section.

Although the weight of contents is usually specified in the signature section of the packages, there are several exceptions. When the weight deviates from the standard, or what the customer might expect, the net weight is shown in fairly large and conspicuous figures on the front of the carton. As an illustration, the Pancake Flour in $1^1/_4$ pounds, and the Corn Meal in $1^1/_2$ pounds, come in weights with which the grocer is familiar, so the figures are included inconspicuously in the signatures of the packages. But the weight of the Farina package is less common—$1^3/_4$ pounds; and this is shown prominently, on the upper left-hand portion of the package.

The enrichment story is also given prominence on the Farina package, since the feature is important in this era of emphasis on nutrition. Each time the word "Farina" is shown on the label, it is preceded by the word "enriched." In addition, there is a strip $2^1/_2$ in. long, in red with white letters (reading, "Contains two added B VITAMINS and IRON"), superimposed conspicuously on the lower right-hand corner of the front cover design of the package. A table of nutrients and a block of "Enrichment Data" are to be found on the sides of the package. All this is evidence of the significance attached to the nutrition feature of the product, as a selling point.

The other important elements to be included on the packages were the recipes, "how-to-use" and other timely hints.

For the text, Gothic type was chosen, because of its high degree of legibility. In each instance, the text is printed in the darkest ink used on the package, maroon or blue as the case might be. The space is broken up by sub-heads, numbers, dots and lines, all except the lines in the contrasting shade—according to the color group—red or orange. The text is so arranged that it is printed independently of the rest of the labels, which means that the recipes and other wording may be changed at any time without involving redesign of the entire package.

The texts on the various packages were chosen with the consumer's viewpoint in mind. There are recipes on all the cartons. We find, for example, on the package for Pancake Flour (in the blue, red and white package, as distinct from the predominantly maroon package of the Buckwheat product) a recipe for *Plain Waffles* on one end, with a list of four variations: Cheese Waffles, Savory Waffles, Honey Waffles and Peanut Butter Waffles—with directions for each. On the opposite end, there is the recipe for *Plain Pancakes*, with suggestions for four variations. On the back there is a set of six suggestions on "How to Make Food Go Further With Pillsbury Pancake Flour." Here is one example: "Combine ground cooked meat, vegetables and seasonings. Roll up pancake. Serve hot with tomato sauce." Below the suggestions, there is a double column of "Pancake Pointers," or advice on the preparation and serving of pancakes and the care of the griddle.

High on the list of objectives that were kept in mind in designing the Pillsbury packages was the desirability of

bitumen is of a tacky nature and the emulsion is a fine dispersion, made stable to the heat and the acids required for catalysis. One of the recent findings in regard to this emulsion-starch-resin glue line, it is said, has been the reduction in corrosive action on tin cans. It is believed that this is due to the reduction in quantity of resin and catalyst used, which presumably are factors in the corrosion problem.

Low-cost adhesive types of bituminous emulsion are also now serving as a successful extender of polyvinyl adhesives. The bituminous emulsion is added directly to the finished cooked polyvinyl adhesive.

Because of all these increased applications for asphalt constituents, great strides have been made in methods for handling such materials and more is being learned daily about the physical characteristics and properties of the unlimited varieties of asphalt compounds.

A wider use of asphalts in packaging before the war, producers of these materials now believe, was retarded by lack of knowledge of methods for handling asphalt and its application. Of necessity, the war has meant considerable development in this direction and makeshift installations devised to meet the emergency requirements of today are pointing the way to refinement that can be made after the war.

To many producers of asphalt specialties, the use of asphalt for packaging represents a sizable part of their business. One company said about 33% of its sales covered orders for asphalts for packaging purposes. Such companies are definitely interested in continuing uses of asphalt packaging after the war. Some of the big petroleum refiners, too, are intensely interested, even though asphalt for packaging constitutes only a small fraction of their total asphalt sales. The reasoning is that many small sources of revenue add up to the big total and therefore research in this direction is a good gamble for future new revenues. Companies, too, which have dealt almost exclusively in newly developed asphalt laminated papers for war shipments will wish to find reconversion uses for such products when the war is over.

The American Society for Testing Materials defines asphalts as "black or dark brown solid or semi-solid cementitious materials which gradually liquefy when heated in which the predominating constituents are bitumens all of which occur in the solid or semi-solid form in nature or are obtained by refining petroleum or which are combinations of bitumens mentioned with each other or with petroleum derivatives thereof."

Native asphalt formations have been known since antiquity and were used quite widely as waterproof materials. They were found as crusts on asphalt lakes in various parts of the world. Largest of these are the natural asphalt formations in Trinidad. These asphalts, however, because of their high softening point are not suitable for packaging purposes.

Late in the 19th century it was discovered that asphalt was a constituent of certain petroleums and could be recovered by distilling off the volatile oils which hold it in solution. Today more than 80% of the world's supply of asphalt is produced at petroleum refineries either by distillation or oxidation.

It is delivered to the user in solid form in blocks that may be melted on the premises or by heated tank cars or trucks in liquid form. Delivery in liquid form is advantageous to the large user, since the hot asphalt may be pumped directly from tank car or truck into the user's plant with less handling. This requires less time and heat to raise the temperature again to the correct degree for application. Tank cars and trucks are usually heated by steam, circulating oil, or chemicals and are so insulated with rock wool or other materials that the temperature of asphalt shipped, say, at 500 deg. does not fall in transit much below the correct temperature for application on arrival.

Asphalt has many of the desirable waterproofing properties of waxes in addition to adhesive qualities, depending entirely upon the grades selected. The number of grades and blends are practically limitless. Differences are due both to the various geographic locations from which the petroleum is obtained and to processing and blending with other materials. Asphalts are sold by grades differing chiefly in softening point, penetration, viscosity, flash and fire point.

The American Society for Testing Materials has established

2—Research has indicated that corrosion of cans is less in V-boxes with asphalt barriers than those laminated with other materials. Army now requires that fibreboard boxes for canned goods be provided with one or two barriers of asphalt.

MODERN PACKAGING
VOLUME 17 MAY, 1944 NUMBER 9

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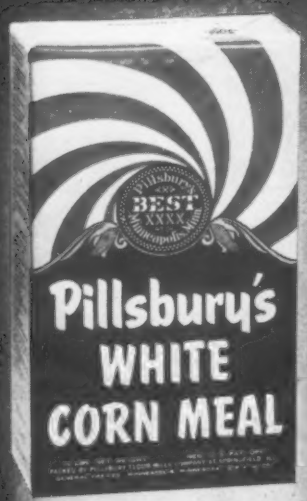

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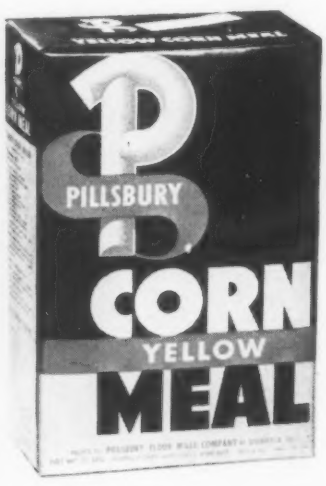

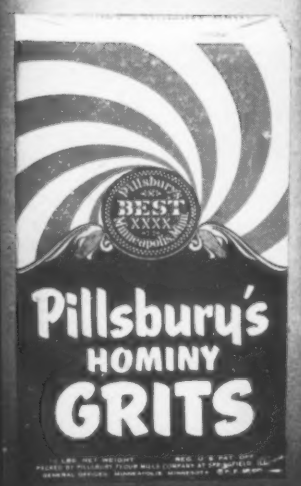

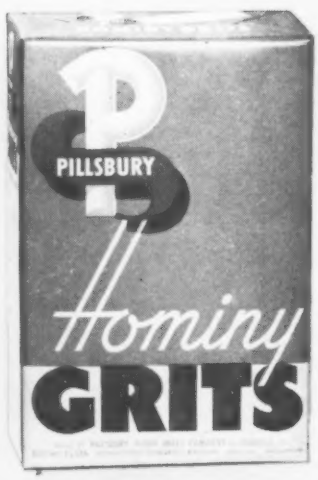

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The decision of a large and well-established organization to sacrifice the recognition value of packages that have been in use for many years is not made lightly. A heavy responsibility rests upon the shoulders of the designer entrusted with the task of creating a new set of packages to replace the ones that are, in a sense, hallowed by tradition and use. In attacking the assignment the problem was divided into parts, according to the objectives to be attained. Some of the objectives overlapped to a degree, but generally speaking, they were as follows:

Adoption of an identification symbol, to be used on all packages, and also as a trademark in Pillsbury advertising. This symbol was to aid in welding the products into a family group.

Improving the appearance of the packages, through design, elimination of unnecessary elements, effective use of color and lettering.

Improving the convenience features of the packages, for both dealer and consumer.

Facilitating the mechanical production of the labels, so that *any* printer could handle the work, regardless of stock, and under high-speed conditions.

The items to be repackaged were: Snosheen, a cake flour; Enriched Farina; Pancake Flour; Buckwheat Pancake Flour; White Corn Meal; Yellow Corn Meal, and Hominy Grits.

Careful consideration went into the creating of an identifying symbol, because upon it would rest most of the burden of improving the appearance of the packages, as well as the task of unifying them into a family. It must be the type of device which would be equally effective in large or small scale—if shown in massive proportions on a billboard, or in miniature, as part of a newspaper advertisement. It must be recognizable at a distance, perhaps high on a dealer's shelf. It must be distinctive, yet simple enough in outline to facilitate reproduction by any process, and on any stock—coated stock, Kraft bag, or even a corrugated board shipping container. It must lend itself to reproduction in two or more colors, yet not depend upon color for its effectiveness.

The design chosen for this many-purpose job was a capital "P" with a swirl crossing the staff of the letter, the letter itself to be executed in pale gray (shaded to produce an embossed effect), with the swirl in one of the contrasting colors of the packages. The design appears on all six sides of every package, no matter what the product.

This identifying symbol serves another purpose, the swirl bisecting it forming a background name-plate for the word *Pillsbury*. By means of this treatment, the value of the tradition and prestige of the name is retained, but without the disturbing effect the word had on the old package because of its length, and because it was one of too many elements. The dropping of the apostrophe and the final *s*, which had appeared on the old packages, brought the length of the name down to more manageable proportions.

It will be noted that this design appears prominently on the front of each package, very prominently—except in the case of Snosheen, where it is subordinate to the name of the product. This was done purposely. Snosheen, alone among Pillsbury products, has been featured as an entity, while the others have been promoted primarily as Pillsbury products. In other words, it was taken into consideration in designing the packages that a woman would be likely to buy Pillsbury

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Corn Meal or Pancake Flour, *because it is a Pillsbury product;* but, in thinking of Snosheen, she does not think of it primarily as Pillsbury's cake flour (though it is to be hoped that she realizes that Pillsbury manufactures it), but as Snosheen.

Having settled upon a design that would make it easy for grocers and consumers to recognize all Pillsbury packages as belonging to the same family, attention was next focused on the problem of making it easy to tell what specific product was contained in each package. It was decided to use two groups of color combinations for the packages—only two, to simplify the mechanical processes. In one group there are maroon, orange and gray on white stock; and in the other, blue, red, gray on white, the gray being the same for both groups. The first combination was to be used for the Buckwheat Pancake Flour, and the Yellow Corn Meal; and the second for the Pancake Flour, Enriched Farina, White Corn Meal, Hominy Grits and Snosheen. Thus the entire series of package wraps uses only five colors.

From previous experience in color work, the designer knew that by means of using different arrangements of these two combinations, he could obtain the effect of a considerably wider range of colors. In other words, by varying the proportions—and especially the proportions of the larger masses of colors, he would get a diversification of effects. This is noticeable in the contrast between the package for Hominy Grits, which is predominantly red—with touches of blue, and with the same gray and white that are on all the packages—and the package of Farina, which is predominantly blue. Both packages have the same combinations of colors, but this would not be realized from a casual glance.

Still further diversification is obtained through overprinting of red on blue, for example, or blue on red. This device is used as a shadow on the swirls across the "P" symbol, and it gives a shadowy accent to the letters of the words "Snosheen" and "Farina," on the fronts of the cartons. This overprinting produces an effect that is very near black and adds another color, free, to the combination. It also gives a three-dimensional effect. There is, in fact, the same "poster quality" in the treatment of these packages as there is in all of this designer's work, the characteristic being a kind of hallmark.

The effects which could be obtained within these two groups of color combinations are far from exhausted in the packages now in production. There is plenty of room for expansion as new products are added. New arrangements of masses of colors, different balance and overprinting all can serve to furnish designs that will be different from those already in use, yet have the same feeling and fit into the family of packages just introduced.

The list of elements taken into consideration, for the convenience of the dealer and consumer, is a long one. For one thing, the shapes and the designs of the packages are of such nature that the boxes may be stacked easily in any desired arrangement—vertical, horizontal, on sides, ends or backs, with the brand and the contents easily recognizable from any angle. Another convenience feature is the printing of the top of each carton in dark ink (maroon or blue, according to the group). It is the top which normally becomes soiled soonest, and the darker inks are most nearly impervious to finger marks.

Another thing borne in mind in the selection of colors for the different packages was the necessity for preventing confusion in the case of products that would be likely to appear side by side on the shelves. For example, the two kinds of

(*Page 67*)

Back panels of two of the new designs show how they present recipes, cooking and menu pointers. Available space is used to best advantage without giving too much of a feeling of crowding.

Pancake Flour and the two kinds of Corn Meal present this problem. For this reason, the carton for the Buckwheat type of Pancake Flour is predominantly maroon, and the carton for the plain Pancake Flour is predominantly blue. Then we find that the Yellow Corn Meal is in a package that is predominantly maroon, while the white variety is in a package that is mainly blue. Despite these differences, there is a strong family resemblance in the whole line, so that the woman who sees a Pillsbury product with which she is unfamiliar will recognize it at a glance, even though it is in a part of the store at a distance from the section where the Pillsbury products she knows usually are kept.

Considerable thought was given to the subject of what, besides the identifying symbol and the name of the product, should go on each package. Though it was recognized that there is much that would be desirable to put on one label, it was decided to include only what could be clearly seen and read—to make the best possible use of the space without sacrificing attractiveness of appearance or legibility.

On the front of each package, in addition to the identifying "P" symbol and the name of the product, there must be the signature (required by law), specifying ingredients, weight, name of manufacturer. In the case of the Farina package, the "enrichment" story would also be put on the front.

In deciding on the signature, the design aims at having it easily legible, yet not distracting in appearance. Gray ink was chosen for this section.

Although the weight of contents is usually specified in the signature section of the packages, there are several exceptions. When the weight deviates from the standard, or what the customer might expect, the net weight is shown in fairly large and conspicuous figures on the front of the carton. As an illustration, the Pancake Flour in $1\frac{1}{4}$ pounds, and the Corn Meal in $1\frac{1}{2}$ pounds, come in weights with which the grocer is familiar, so the figures are included inconspicuously in the signatures of the packages. But the weight of the Farina package is less common—$1\frac{3}{4}$ pounds; and this is shown prominently, on the upper left-hand portion of the package.

The enrichment story is also given prominence on the Farina package, since the feature is important in this era of emphasis on nutrition. Each time the word "Farina" is shown on the label, it is preceded by the word "enriched." In addition, there is a strip $2\frac{1}{2}$ in. long, in red with white letters (reading, "Contains two added B VITAMINS and IRON"), superimposed conspicuously on the lower right-hand corner of the front cover design of the package. A table of nutrients and a block of "Enrichment Data" are to be found on the sides of the package. All this is evidence of the significance attached to the nutrition feature of the product, as a selling point.

The other important elements to be included on the packages were the recipes, "how-to-use" and other timely hints.

For the text, Gothic type was chosen, because of its high degree of legibility. In each instance, the text is printed in the darkest ink used on the package, maroon or blue as the case might be. The space is broken up by sub-heads, numbers, dots and lines, all except the lines in the contrasting shade—according to the color group—red or orange. The text is so arranged that it is printed independently of the rest of the labels, which means that the recipes and other wording may be changed at any time without involving redesign of the entire package.

The texts on the various packages were chosen with the consumer's viewpoint in mind. There are recipes on all the cartons. We find, for example, on the package for Pancake Flour (in the blue, red and white package, as distinct from the predominantly maroon package of the Buckwheat product) a recipe for *Plain Waffles* on one end, with a list of four variations: Cheese Waffles, Savory Waffles, Honey Waffles and Peanut Butter Waffles—with directions for each. On the opposite end, there is the recipe for *Plain Pancakes*, with suggestions for four variations. On the back there is a set of six suggestions on "How to Make Food Go Further With Pillsbury Pancake Flour." Here is one example: "Combine ground cooked meat, vegetables and seasonings. Roll up pancake. Serve hot with tomato sauce." Below the suggestions, there is a double column of "Pancake Pointers," or advice on the preparation and serving of pancakes and the care of the griddle.

High on the list of objectives that were kept in mind in designing the Pillsbury packages was the desirability of

facilitating the mechanical processes entailed in printing the labels. This affected the choice of the identifying symbol, influenced in keeping to a minimum the number of elements to be shown on the packages and in the decision not to use halftones, and was a factor in the arrangement of the text so that it could be run independently of the pictorial sections of the labels.

There is very little overprinting of colors, and no problem of register. Produced by letterpress on white coated fifty-pound duplex super paper, the labels are run on a five-color press at the rate of over 4,000 sheets per hour. Formerly the Pillsbury wraps were printed on a sixty pound stock with varnish and made heavy use of chrome yellow, requiring several press runs for the finished job. Now, chrome yellow being practically unobtainable, the new labels represent a conservation measure both as to colors as well as weight of paper stock.

Gloss inks, of colors defined according to I.P.I. color designations, provide the lustre which is so desirable as a sales appeal feature. That lustre is not merely a matter of appearance, however; it serves a protective function by helping to keep packages from smudging on the shelves. The inks, of course, as well as the drying spray used in the rapid production, must be completely non-toxic and must comply with the health regulations in all states.

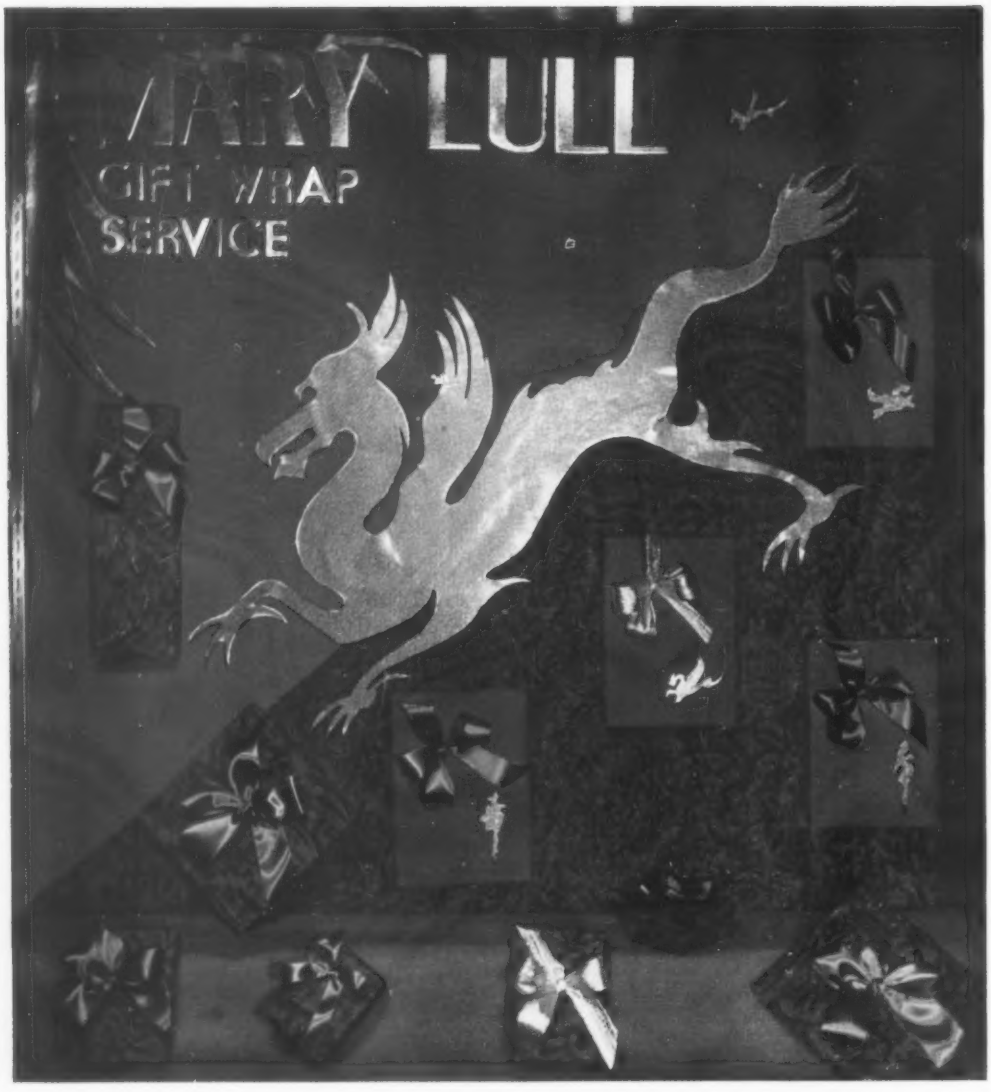
All of the packages are the familiar wet-label tight-wrap. The gloss inks are not only quicker and less expensive to produce, in comparison with the former four-color and varnish wraps, but experience has shown that there is less likelihood of "blocking," which is a hazard that always tends to slow up the package production line. One interesting fact about the color application is that the solid colors are applied by a different well and roller from the one used for type matter in the same color. This is done in order to insure a uniform ink spread for the solids and at the same time to avoid filling or clogging of the type matter.

If it were necessary to adopt a cheaper paper, this would not be disturbing, for the sharp, clean designs of the packages can be reproduced on almost any medium. They were, in fact, created with the thought in mind that they would be applicable to shipping containers, to kraft, and even to cloth bags. The desirability of being able to combine the runs, not only for packages falling in one of the two color groups but for packages in both groups, was kept in mind.

The wisdom behind the precautions taken to ensure good mechanical reproduction is evident in the fact that the printed labels compare favorably with—indeed they are actually superior to—the drawings from which they were made. As most persons in the graphic arts world well know, it is usually the other way around.

There has been so little redesigning of packages on a large scale recently that the question arises, "Is this a good time for Pillsbury to undertake so large a project?" Actually it is a very good time. As stated before, there were increasing difficulties in the use of halftones and the reproduction of labels with so many colors and so many varied elements in the designs. The change would probably have been worthwhile if it had accomplished nothing more than the facilitating of the mechanical processes involved in the packages. Some of the other improvements, particularly those that make it easy for consumers and grocers to see at a glance the brand, the contents and the net weight (*Continued on page 152*)

Close-up of a typical new side panel, at right, showing further effective use of space for recipe suggestions. Photo below shows how the new Pillsbury symbol appears on all six sides of each of the packages, and how the brand and contents are clearly identified no matter which way the packages may be stacked on the shelf. Note the dark color tops, chosen to avoid soiling and finger marking during storage and use.



Gift wraps in this display were inspired by magenta and green papers—available in limited quantities from prewar stocks—that suggested Chinese characters and symbols. The timely Chinese theme was adopted for Miss Lull's gift wrapping service at Gimbel Bros., New York.

No priority on beauty

A year or two ago, when shortages first loomed, one department store said they would continue some kind of fancy gift wrappings, even if they had to make them out of old newspapers. They dyed some newspapers, wrapped a package and decorated it with shredded newspaper rosettes just to show how this could be done.

But now even old newspapers are scarce, and what are available should be saved and salvaged to be repulped.

Nevertheless, when there's a will to gift wrap, there is a way. The packages illustrated in color on these pages, designed by Mary Lull for her gift wrapping service in leading department stores, may give some ideas of how this year's gift wrapping problems can be surmounted even when the paper orders allow no paper.

Miss Lull began designing packages several years ago when she started dressing up holiday liquor baskets for the gift trade in a leading New York department store. Sales skyrocketed. This gave her the idea to try similar technique for other lines of merchandise. In 1941, she was a winner in the All-America Packaging Competition, the first individual to receive this award. When wartime limitations curtailed gift packaging, sheb egan a search for non-critical materials and left-covers that could be used and it is her belief that almost anything is possible if you can adapt what is at hand to your requirements.

The display shown above and the packages shown on page 71 are all made of waste and scrap materials. Similar ones can be designed, says Miss Lull, by anyone who has the ingenuity and perseverance to find the scrap and use to advantage whatever he can find.

Some of these wrappings are wallpapers. They are scrap wallpapers—off color rolls—perfectly good color by themselves, but rejected because their colors are not uniform with other rolls to paper a room. Many of the packages and the display are trimmed with metallic foil, all made before the war, but pieces too small to be sold as regular stock. Many of them are large enough, however, to be stacked up in a pile and cut together into hundreds of bells, dragons, ducks and bunnies just large enough to decorate the top of a box.

Because ribbon of rayon and cotton is scarce, remnants

of flowered cotton chintz have been cut into strips with pinked edges to serve in the place of regular decorative ribbons.

Artificial flowers and holly, restricted in production for the duration, have been replaced with natural trims of real holly and common field weeds dipped in paint. Dried weeds dipped in the proper colors make an excellent trim and a one day's trip to the country will provide quantities of such decorations.

Only the lids of these boxes are decorated. Bottoms are left uncovered. This is done for two reasons. First, it saves all the paper that would be necessary for a complete wrap. Second, by this arrangement, the box is so decorated that it may be opened and the lid replaced without upsetting the decor of the box and the recipient of the gift may keep the decorated box as long as he wishes. By using just a bow of ribbon for decoration, yards and yards of ribbon are also saved, yet the effect of just a bow is as effective as a complete wrap.

Much depends, of course, on adapting materials at hand for seasonal or special gift requirements. The display shown on this page was inspired by the current interest in China. The thought for a Chinese theme, however, was suggested in this case by the magenta paper and green foil that was available. What more appropriate as a symbol of China than a dragon and what more appropriate to make it from than a piece of green foil. Hundreds of small pieces of foil were available. These were cut into tiny dragons to place on the box covers. A patterned paper suggesting Chinese characters was also available from another source. This blended well with the plain magenta. These two papers were thus combined for the display with ribbons to match and thereby suggested the possibilities for two kinds of gift wraps—one of plain color with a green dragon and green ribbon bow; the other of figured paper with either a green or a magenta box, because either color could be used on this.

Some rolls of wallpaper depicting gay colored vegetables suggested the possibility for a collection of gift wraps tying in with the Victory Garden theme. These could be used either as complete wraps or as cut-outs of the vegetables from the waste that was left for decoration on the top of each box. The cauliflowers were given further realistic treatment by being only partially glued down, the rest left loose and curled slightly to give a third dimensional effect of an actual vegetable. Natural trims of painted beans added an amusing realistic note to other Victory Garden packages used for this seasonal promotion.

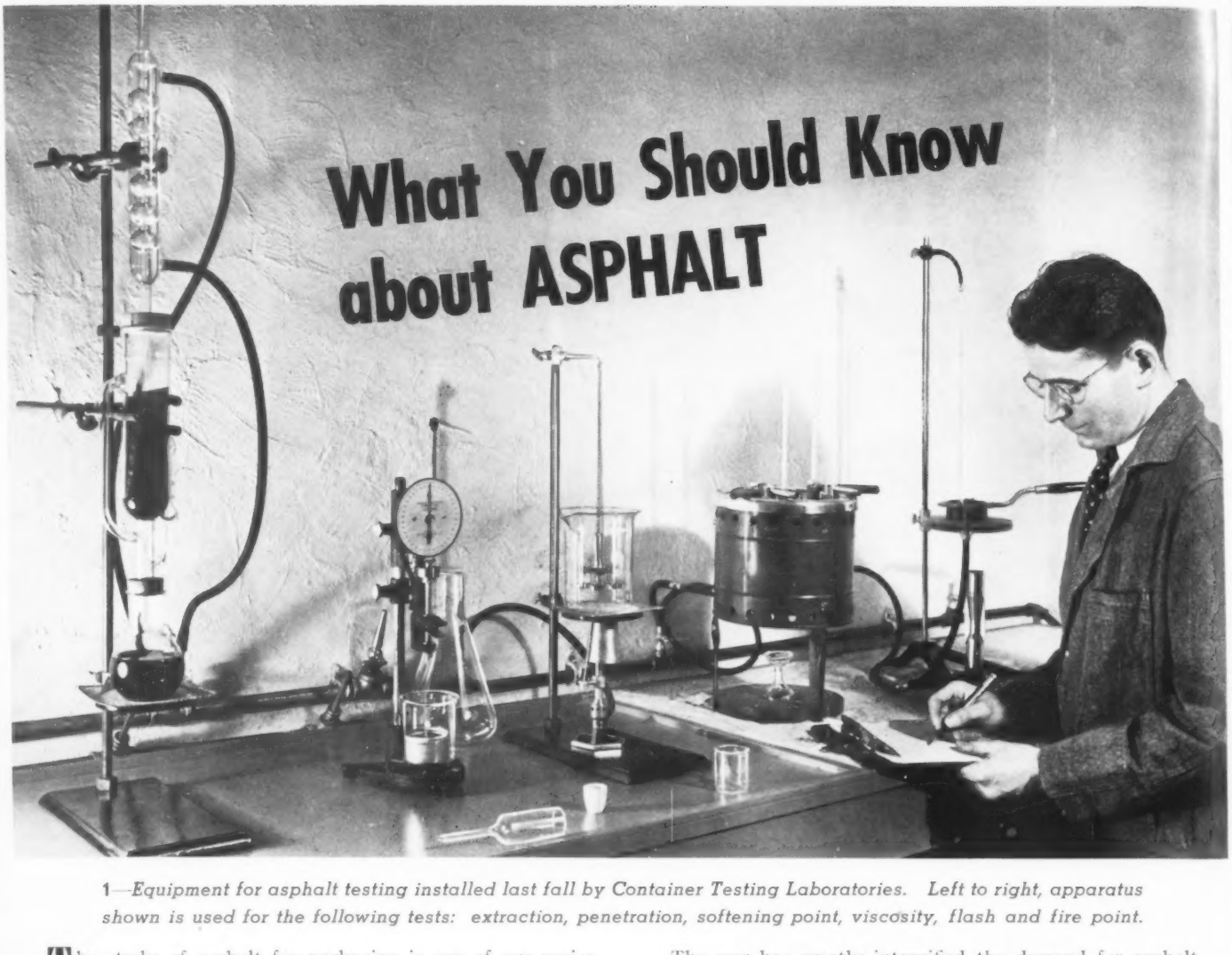
A kitchen wallpaper with an overall design of dishes was the inspiration for a special shower package. A bridal package has a tiny cut-out bride on it with a real veil made from scraps of net obtained in the trimming market.

Yellow and magenta shades were combined for Easter packages—all of them with chintz ties. These were further decorated with cut-outs from paper scraps depicting eggs, rabbits and even the Navy duck, modeled after the renowned Donald. Any type of textile scrap, soft enough to tie, might be cut and pinked to replace ribbon ties.

Miss Lull has found that the public generally has good taste and will prefer a simpler (*Continued on page 150*)

This collection shows how wallpaper, chintz remnants, weeds, cut-outs from scraps of foil, painted beans, bits of veiling are worked into trims. Bows of ribbon are effective and save yardage.

What You Should Know about ASPHALT



1—*Equipment for asphalt testing installed last fall by Container Testing Laboratories. Left to right, apparatus shown is used for the following tests: extraction, penetration, softening point, viscosity, flash and fire point.*

The study of asphalt for packaging is one of our major research projects of the year," said the technical research director of a leading oil company recently.

This statement is further indication of the emphasis being placed today on this oldest of known waterproofing materials—so old some historians claim that Moses' basket in the bulrushes was waterproofed with natural asphalts removed from the asphalt lakes of the Middle East.

The critical supply of petroleum waxes and war requirements have created a demand for every type of water and water-vaporproofing material. Asphalts can be used for many purposes in place of waxes and thus reserve waxes for small packages with more exacting requirements. They also have valuable adhesive properties.

The low cost of asphalt (about 1 cent a pound) in comparison with paraffins and microcrystalline waxes (from 5 to 14 cents a pound) as well as the abundance of this material are other important considerations not only for the war period, but for postwar packaging. It should be pointed out, however, that no predictions can be made now for the time when other materials, once off critical lists, may be selected on a competitive basis for cost and performance.

Asphalts have been used for years by paper producers as a laminating material for multiwall bags and for the liners of textile bags. The first patent on this subject was U. S. No. 361,050, issued April 12, 1887, to W. H. H. Childs for duplexing paper by cementing two or more layers with asphalt.

The war has greatly intensified the demand for asphalt laminated papers used for the walls of solid fibre containers to ship military and lend-lease foods and equipment, and as an outside lamination for waterproofness of paper containers to hold motor oil, paints, printing inks, etc., for waterproof flexible films combined of kraft, metal foil, cellulose acetate, cellophane, etc., and for treatment of sealing tapes.

Asphalt is also being used as a coating material by many shippers to waterproof the seals of containers for overseas shipment.

Asphalt or bituminous emulsions for the waterproofing of paper were first made in Europe about forty years ago, but the use of such substances in watery mediums for the treatment of paper has also received wider attention since the beginning of the war.

One of the most important present-day uses of bituminous emulsions is in the form of sizing applied to multi-cylinder boards, subsequently used for laminating V-type waterproof containers. The advantage of such applications, it is said, is in the increased amounts that can be added to the sheet to attain exceptional degrees of sizing which is reflected principally in wet strength by Mullen bursting tests after progressive periods of water immersion.

Bituminous emulsions have also come into prominence as a low-cost extender for starches, the more expensive urea formaldehyde resins and other materials now being used in weatherproof laminating adhesives. Such emulsions are entirely different from those used as a size. The basic

bitumen is of a tacky nature and the emulsion is a fine dispersion, made stable to the heat and the acids required for catalysis. One of the recent findings in regard to this emulsion-starch-resin glue line, it is said, has been the reduction in corrosive action on tin cans. It is believed that this is due to the reduction in quantity of resin and catalyst used, which presumably are factors in the corrosion problem.

Low-cost adhesive types of bituminous emulsion are also now serving as a successful extender of polyvinyl adhesives. The bituminous emulsion is added directly to the finished cooked polyvinyl adhesive.

Because of all these increased applications for asphalt constituents, great strides have been made in methods for handling such materials and more is being learned daily about the physical characteristics and properties of the unlimited varieties of asphalt compounds.

A wider use of asphalts in packaging before the war, producers of these materials now believe, was retarded by lack of knowledge of methods for handling asphalt and its application. Of necessity, the war has meant considerable development in this direction and makeshift installations devised to meet the emergency requirements of today are pointing the way to refinement that can be made after the war.

To many producers of asphalt specialties, the use of asphalt for packaging represents a sizable part of their business. One company said about 33% of its sales covered orders for asphalts for packaging purposes. Such companies are definitely interested in continuing uses of asphalt packaging after the war. Some of the big petroleum refiners, too, are intensely interested, even though asphalt for packaging constitutes only a small fraction of their total asphalt sales. The reasoning is that many small sources of revenue add up to the big total and therefore research in this direction is a good gamble for future new revenues. Companies, too, which have dealt almost exclusively in newly developed asphalt laminated papers for war shipments will wish to find reconversion uses for such products when the war is over.

The American Society for Testing Materials defines asphalts as "black or dark brown solid or semi-solid cementitious materials which gradually liquefy when heated in which the predominating constituents are bitumens all of which occur in the solid or semi-solid form in nature or are obtained by refining petroleum or which are combinations of bitumens mentioned with each other or with petroleum derivatives thereof."

Native asphalt formations have been known since antiquity and were used quite widely as waterproof materials. They were found as crusts on asphalt lakes in various parts of the world. Largest of these are the natural asphalt formations in Trinidad. These asphalts, however, because of their high softening point are not suitable for packaging purposes.

Late in the 19th century it was discovered that asphalt was a constituent of certain petroleums and could be recovered by distilling off the volatile oils which hold it in solution. Today more than 80% of the world's supply of asphalt is produced at petroleum refineries either by distillation or oxidation.

It is delivered to the user in solid form in blocks that may be melted on the premises or by heated tank cars or trucks in liquid form. Delivery in liquid form is advantageous to the large user, since the hot asphalt may be pumped directly from tank car or truck into the user's plant with less handling. This requires less time and heat to raise the temperature again to the correct degree for application. Tank cars and trucks are usually heated by steam, circulating oil, or chemicals and are so insulated with rock wool or other materials that the temperature of asphalt shipped, say, at 500 deg. does not fall in transit much below the correct temperature for application on arrival.

Asphalt has many of the desirable waterproofing properties of waxes in addition to adhesive qualities, depending entirely upon the grades selected. The number of grades and blends are practically limitless. Differences are due both to the various geographic locations from which the petroleum is obtained and to processing and blending with other materials. Asphalts are sold by grades differing chiefly in softening point, penetration, viscosity, flash and fire point.

The American Society for Testing Materials has established

2—Research has indicated that corrosion of cans is less in V-boxes with asphalt barriers than those laminated with other materials. Army now requires that fibreboard boxes for canned goods be provided with one or two barriers of asphalt.

3

4

3—When tin was denied, Loose Wiles Biscuit Co. became a pioneer in the development of asphalt coatings to provide a weatherproof seal on fibre boxes for Army biscuits. This asphalt coating and dipping line, after two years, is still going strong. **4**—*Paper containers for motor oil have outside laminations of asphalt for waterproofness.*

standard tests for determining softening point, penetration, viscosity, flash and fire point of asphalts. These tests are used in selecting proper grades peculiar to each application. A committee of this organization is also at work on a study of recommendations for asphalts used in paper processing.

Asphalts are hard brittle solids easily fractured at low temperatures. Upon warming they become progressively softer. The softening point, a term more accurate in describing the liquification of asphalt than melting point, is determined by the "ball and ring" procedure. The softening point is recorded at the temperature required for a cake of asphalt to soften sufficiently so that a ball resting upon the asphalt is forced through the standard ring. Penetration is measured by the depth a steel needle will pierce a cake of asphalt at a given temperature, when the needle, weighted with a specified force load, is free dropped on the asphalt. Viscosity is measured by the amount of time required for a specified quantity of asphalt heated to a certain temperature to pass through a Furol tube into a receiving flask.

Important factors to be considered for asphalts used in paper laminations and coatings are pliability, staining, adhesion and cohesion. The asphalt cannot be so brittle that it will crack at low temperatures, yet a grade that may be flexible at low temperatures may have at the same time a softening point so low that the asphalt will liquefy at temperatures too low to be suitable for use in packages shipped to tropical climates. On the other hand, a grade that will have sufficiently high softening point for tropical temperatures may be so brittle that it is impractical for packaging purposes. Viscosity must also be considered to give the hot asphalt fluidity for proper spread over the paper surfaces at the temperature applied. Flash and fire point must be considered from the standpoint of fire hazards in the plant of the user.

Softening points of asphalts may be as high as 350 deg. F., but for paper packaging they usually range from 140 deg. F. to 200 deg. F. They usually flow readily at a temperature about 100 deg. F. above their softening point.

The thermal properties of asphalts are different from those of petroleum waxes, which have sharp melting points and low viscosities. This complicates their use in packaging. They are miscible with petroleum waxes and petrolatum to a limited extent. The quantities of these materials which can be blended depend upon the nature of the asphalt. For the grades normally used in packaging, the upper limit of solubility is between 25 and 30% of the additive. Above these percentages, it is said, a two-phase liquid system results, which remains separated even after cooling.

Because of their fluidity in molten conditions, waxes and petrolatum blended with asphalt reduce the viscosity of the asphalt appreciably with little effect upon the softening point. This permits application temperatures to be lowered as much as 25 deg. F. Second, they plasticize the asphalt at low temperatures and may help to prevent fracture under these conditions. This is particularly true of petrolatums

which may increase the useful range by as much as 35 deg. F.

It is estimated that thousands of pounds of asphalt are now being used daily for packaging purposes. Findings of the past year indicating that corrosion of cans was less in V-boxes using asphalt barriers than in V-boxes laminated with other materials and the subsequent Army requirements that such boxes be provided with 1 or 2 barriers of asphalt have made it more important than ever for box makers to have information about the properties of asphalts.

At the request of some 15 makers of weatherproof boxes, the Container Testing Laboratories installed last fall complete facilities for the testing of asphalt. The purpose was to provide an independent source through which box makers could have tests made of various grades of asphalts. Formerly they had to rely entirely on asphalt suppliers for such information.

Apparatus installed for this purpose includes equipment for making tests of softening point, penetration, viscosity, flash and fire point and an extraction test by which it is possible to determine the quantities of asphalt required for laminating per square foot of board.

From results of the series of tests made this group hopes to work out a set of specifications that can be used in ordering correct grades of asphalt for the laminating of V-boards.

Most applications of laminating asphalts have been for shipping container board or heavy kraft papers for multiwall bags and flexible films such as creped kraft liner materials. However, asphalt has been used to some extent for lighter weight paper laminations. Experiments have been made in this field for cigarette wrapping papers to take the place of foil. Where eye appeal is important and where absence of odor is important, asphalt however has limitations. Its dark color is unsuitable for many purposes and the difficulty of applying it to a thin sheet without having it bleed is also a hindrance. Many asphalt enthusiasts believe, though, that certain constituents of asphalt may eventually be used which will eliminate all color and odor. How this can be done without taking away some of the necessary properties, however, is questionable. It is the combination of the asphaltines, resins and oily constituents of asphalts which give waterproof and adhesive qualities.

Among the outstanding war pioneers in the use of asphalt for package coatings is the Loose-Wiles Biscuit Co. When tin was forbidden for Army biscuits, this company had to find a new waterproof container and find it quick. The difficulty was in finding a satisfactory seal for weatherproof containers. After five months of experiment Loose-Wiles developed what they called an Aquaproof seal—a fibre container which had all ends and seams dipped with molten asphalt. The procedure was like this:

Twenty-four one-pound wax-paper wrapped cartons of Type C Square Ration Biscuits were placed in a weatherproof fibre container. Inside the end flaps a piece of weatherproof fibre board was inserted loose directly over the biscuit cartons. The carton then went to an asphalt sealing line. With a brush, one man applied asphalt heated to more than 300 deg. all over the flaps, the edges and corners of one end of the box. Then he closed the box with hand pressure, turned it over and passed it on to a second man on the line. This man went through similar procedure for the other end of the box. The third man dipped the edge of the box with the manufacturer's seam through a V-shaped trough containing a continuous flow of asphalt. Each end of the carton was again dipped in asphalt to a depth of two inches so that both ends were completely covered.

A strip of 60-lb. kraft paper impregnated with 25 lbs. of asphalt per ream was placed over the side seal and square pieces of the same material were placed over each end like a cap to facilitate handling and to prevent blocking. Then two such boxes were enclosed in a larger container and similarly treated.

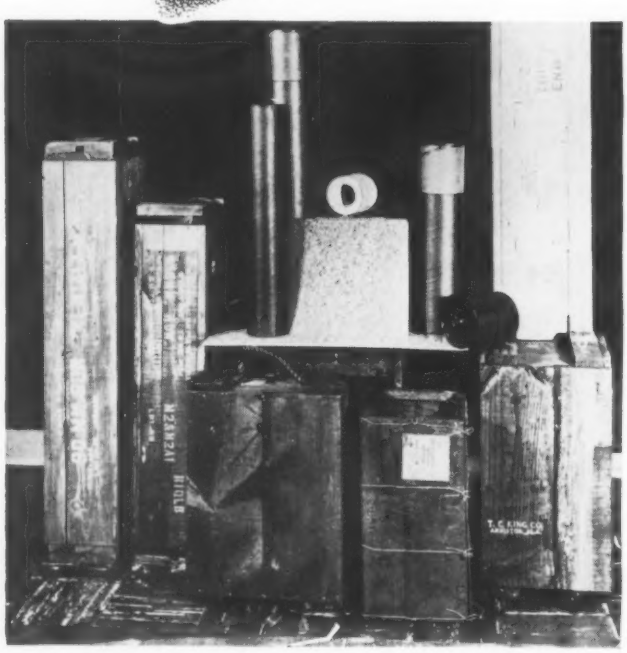
Equipment used for this sealing included a standard asphalt melting unit and vats on the line made from discarded dough-batch mixing units. Gas units were installed under the vats to keep the asphalt at the proper temperature.

The company had its troubles (*Continued on page 148*)

5—*Asphalt laminations are used in the paper plies of multiwall bags for flour shipped overseas by the Navy. Dehydrated potatoes for the Navy are packed in cartons with interior liner bags which have asphalt laminations.*

the Army reuses

1



2

The Ordnance Department today is conserving tons of critical lumber and paper by some plain and fancy red-tape slashing. In Ordnance circles, the Redistribution and Salvage Section is known as the Headache Department.

Thousands of obsolete boxes, for which there was no apparent use, were piling up at various Ordnance depots. This vast accumulation was due to new packaging methods that saved critical shipping space, and to modifications and improvements in many Ordnance items which necessitated boxes of different dimensions.

The Headache Department first tackled this problem by contacting the other branches of the Army to determine whether they could use some of the obsolete boxes. A showroom was established in the mammoth Pentagon in Washington and a sample of each obsolete box was displayed. Rep-

1—Metallic belt link crate has been used three times. Government credit is 15 cents per crate. **2**—*Ammunition containers, artillery case boxes, machine gun chests, metallic link crates all made from obsolete boxes or reconditioned.* **3**—*Reconditioned gun chest for B.M.Q. .50-calibre M2 A.C. Basic gun has been reused four times.*

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resentatives of the different services made an inspection, with the result that 500,000 boxes were transferred from Ordnance to other Army establishments.

When these boxes had been disposed of, the Headache Department was informed that the Ordnance arsenal at Metuchen, N. J., had been requested to do a re-packaging operation for overseas shipment, using new packaging specifications calling for a limit weight of 100 lbs. per box.

The arsenal needed thousands of new boxes, but had on hand thousands of obsolete boxes. The joker in this situation was that the arsenal was experiencing a man-power shortage at the time and was unable to break down the obsolete boxes for re-use. The headache boys thought up the novel solution of enlisting the aid of a near-by reformatory. Thousands of boxes are now being made from dismantled material by inmates who want to play a role in the war.

Many artillery shell loading plants had contracts for boxes, but the contractors could not obtain sufficient lumber to make them. The Headache Department rounded up thousands of obsolete and surplus boxes from Ordnance establishments, secured 200,000 boxes from the Army Chemical Warfare Service, and shipped all of them to the box vendors who prepared them for artillery projectile shipment.

One of the most difficult problems handled by the Headache Department was the disposition of a certain type of ammunition container which used a moisture-proof asphalt composition. A nation-wide inquiry revealed that no paper company could re-use these containers because the asphalt would clog their machines. Army Ordnance insisted that the great scarcity of material made it imperative to invent a new process. One paper company eventually did invent a process that makes it possible to re-work asphalt-treated containers into paperboard which can be used to make new containers.

Today Ordnance sells the containers to the inventive paper company for $3.00 a ton at points of location. Some containers are collected at training camps in this country—more than 700 tons a month from one camp alone. Additional tons are gathered at ports of embarkation.

Corrugated cartons are knocked down, segregated as to size and, when practicable, returned to war contractors' plants for re-use. Accumulations of corrugated cartons not re-used by war contractors are sold as second-hand cartons.

Corrugated cartons not suitable for re-use are sold as scrap with the stipulation that it will be used in the manufacturing of new corrugated cartons. Even the scrap accumulating at plants manufacturing containers is included in the sale to the paper company which collects these items at training camps and ports of embarkation.

In addition to these achievements, the Headache Department recently completed arrangements for the re-use of 50,000 small arms ammunition boxes a week that were originally shipped to training centers in this country. This program will conserve many thousands of feet of lumber and also achieve a saving of $50,000 a week, $1.00 a box.

Manufacturers of machine gun chests have entered the Ordnance re-use program for .50-calibre machine gun chests which were accumulating at airplane establishments where the machine guns are mounted on planes. Thousands of boxes are being returned monthly to the machine gun manufacturers where they are being reconditioned and re-used. The cost of this operation is being deducted from the original cost of the $5.00 chest and the difference is being credited to the government on the contract. Re-use for the month of January 1944, was well over 20,000 boxes. All Army Ordnance establishments have installed paper baling and strapping machines.

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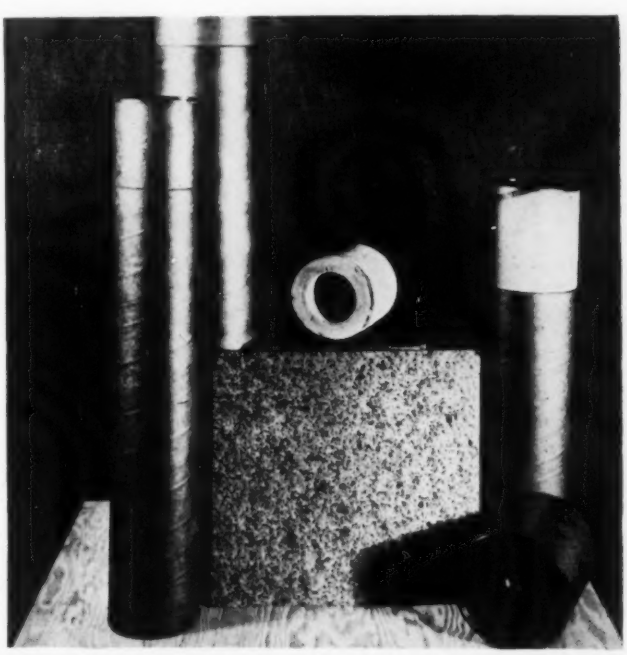
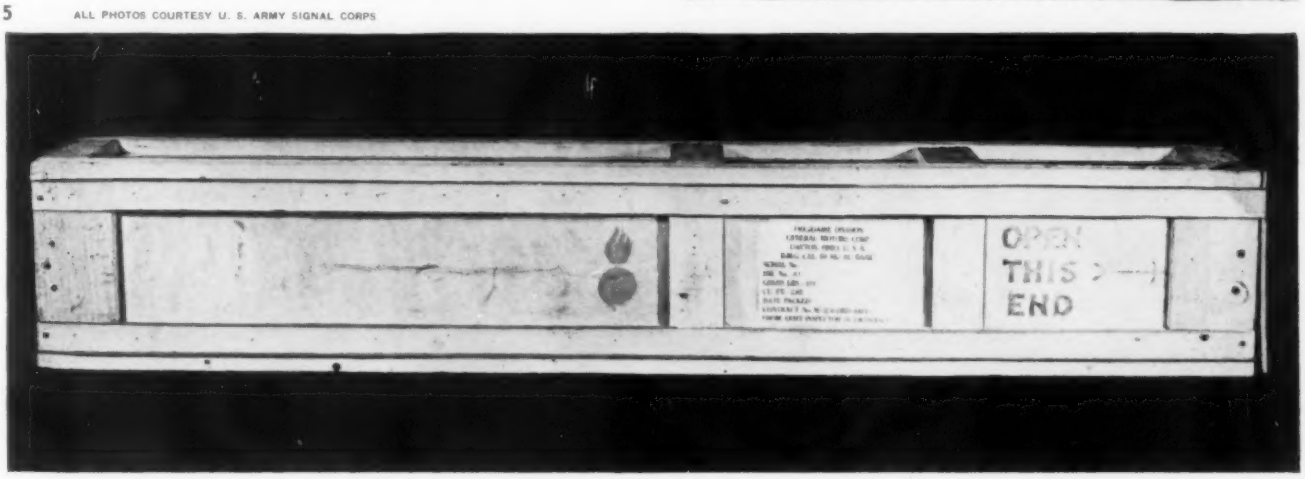


4—M-129 container on right was made from obsolete M39A1 container shown left. Wooden cone was salvaged for reuse in M-129 container. Paperboard (20% asphalt) was made from old containers, cut and trim, and unusable containers returned from overseas. **5**—*105-mm. howitzer box was made from obsolete .30-calibre machine gun chest.*

5 ALL PHOTOS COURTESY U. S. ARMY SIGNAL CORPS



1—Few consumers have had the opportunity to choose from a variety of cartons for frozen foods the ones best suited to their family needs. Illustrated here are the variety of containers in general use today.

What the consumer wants in FROZEN FOOD PACKAGING

*by Nancy K. Masterman**

Every consumer is a prospective customer of packaging for frozen food whether she buys the ready-packed commercially frozen product or whether she packages and freezes her own in a home freezing unit or community locker plant.

The homemaker of 1944 knows that she saves time and prevents waste by using the frozen product. She is looking forward to having frozen foods lower in cost for even wider general use. She anticipates the day when she can buy frozen cuts of graded meat. Frozen cooked foods will find a welcome in the servantless household that is apt to prevail for some time to come.

Producers of food are enthusiastic about freezing to the point of evangelism. The garden now provides fresh fruits and vegetables on the table the year round. Farm animals are slaughtered at the time and the maturity desired and a variety of fresh meat is available. The farm woman who has struggled with the sweltering process of home canning welcomes the new, labor saving, time saving, pleasant process of home freezing.

Interest in the home preservation of food by freezing has spread over the country like wildfire. The war has served to focus attention on a method that had been enjoyed by a relatively small number of home processors. Because of the high first cost, ownership of home freezing equipment has been limited in the past to master farmers and the wealthier city dwellers. With the Victory Garden development, someone discovered the old ice cream cabinet. The demand jumped the price from $15 for practically any size to several hundred dollars for one of two-cubic-foot capacity. The community locker plant has introduced frozen food to millions of patrons over the country. The locker plant has been used principally for the storage of meat and poultry but the amount of fruits and vegetables frozen and stored in lockers has materially increased in the last year.

All this development has meant a demand for packaging materials for frozen food—a demand by commercial packers, by operators of locker plants, and by home processors. This demand will increase as equipment for home freezing becomes available, as the expansion of the locker industry is permitted,

* Research Associate, School of Nutrition, Cornell University.

and as increased home storage for commercially frozen foods is made possible.

What do all these new consumers of packaging materials want? What do they expect from packaging for their commercially frozen or home frozen food?

The interest the consumer has in the subject is expressed by one consumer who writes: "I'd like very much to know what you think about this wrapping and container subject. It is very vital because quite naturally one goes to a great deal of trouble to prepare vegetables, fowl, meat or beef and you want to get good preservation results and until you have had a period of time to see how your packaging works out, you are quite concerned."

Other consumers have not reached the stage of concern until faced with a problem: "I have found some drying of meat has taken place. I enclose a sample of the paper for your inspection. Can you suggest anything better?" or "Could you tell me what causes meat to become dry and distasteful and especially around the fat part? The condition became noticeable after three or four months and then gradually became dryer. We find the sliced meat worse than the roasts," or "The boxes I used for my strawberries leaked. I have half an inch of berry juice in my locker. How do I clean the locker? Why did the package leak?"

The average home processor is so new at the game as not to know his wants or his problems. He knows when the results have not been satisfactory but like the authors of the foregoing quotations he does not know why.

Protection

The primary purpose of all packaging is protection. Packaging for frozen food perhaps more than any other packaging must afford complete protection if the product is to keep its fresh quality over the months of the storage period. Because of the low storage temperatures and relatively low humidity, frozen food held in storage dries out unless properly protected. The moisture from the frozen food evaporates and condenses on the colder surface of the freezer coils or plates or on the sides of the cabinet itself. This evaporation is a serious loss to the food. Drying results in flavor changes and in color changes in the food. Because of lost moisture the food is tough and dry when cooked. Water vapor, being air borne behaves as a gas escaping not only through the cracks and seams of the package but through the paper itself. All of the papers and wrappings for frozen food today are water-vapor-resistant rather than water-vapor proof. Since meat is usually stored for a year, fruits and vegetables from 8 to 10 months, protection must be adequate.

Packaging for frozen food should be water-vaporproof. Part of the difficulty home processors have experienced has been due to lack of education in how to prepare foods for freezing and their failure to realize that here is a process that demands special treatment. Some persons have used ordinary waxed

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2—*Many women use stockinette to hold cellophane or other lightweight paper close to meat to protect paper from tears or breaks.* **3**—*Wide stretch of stockinette makes it adaptable to many sizes of meat packages.* **4**—*Separating chops, steaks and meat patties with cellophane before freezing allows individual pieces to be separated without thawing.* **5**—*A consumer solution for time-saving and convenience in packaging large quantities of asparagus and broccoli is simple cellophane-stockinette combination.*

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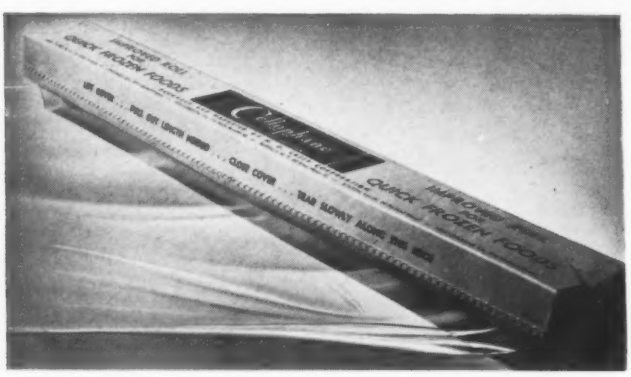

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***6**—A canning funnel is commonly used with the linerless package; a special funnel is now made for carton-with-liner.* **7**—*Convenient package with cutting edge dispenses cellophane for home packer.* **8**—*Home freezers need a mandrel to square off liners, shape containers for greater efficiency. This one is homemade.*

papers, not realizing that there is a difference between waterproof and water-vaporproof. Because of lack of information and in the effort to make the business profitable, locker operators have often chosen a paper for wrapping meat simply on the basis of cost, failing to realize that packaging that affords inadequate protection is expensive regardless of first cost.

It would be very helpful if there were available standards of water-vaporproofness so that an individual buying packaging materials could have something on which to base his judgment.

Many locker plants are doing a very poor job of wrapping, failing to make the best use of the material they have selected, thus adding poor methods to poor wrapping material.

Packaging for frozen food must protect from loss of liquid through leakage. One of the most frequently encountered problems in the storage of fruits is that of leakage. Again lack of experience and guidance have often resulted in a poor choice of a package for freezing fruits with syrup. On the other hand some packages recommended for this use by the manufacturer fail to perform. Syrup is heavy and freezes slowly. In many instances the liquid never freezes solidly. Package liners burst at the seams. Sealing is often incomplete or weak because of the presence of moisture or the use of too hot a sealing device. Some packages are not liquid tight when inverted. In the scramble that exists in lockers and home units, packages are frequently upset. (It is to be hoped that postwar units will eliminate the scramble and make orderly arrangement possible.) The containers of today that are leakproof and liquid-tight unfortunately are wasteful of space. However, they are preferred by many consumers because they can be depended upon to hold the product. The ideal package would be both space saving and leakproof.

Packaging must protect the food from absorbing odors or giving off odors. Fish, smoked meats and strong odored products are stored side by side with the delicately flavored.

It must protect it from absorbing flavors. Many users of home equipment have found their units invaluable to store butter. On the farm butter is stored at the peak of production to carry the family over the period of non- production or high prices. Butter has been unsatisfactory in cabinets where packaging protection has been inadequate.

For continued protection the packaging material must be durable. It must stand much handling without breaking or coming unsealed. Liners must not crack or break under use. *It must fit the product, allowing a minimum of air space.* Consumers find the cellophane-stockinette combination the best on the market today for meat, since it fulfills more of their specifications than any other packaging available.

Convenience

In addition to affording protection a package must be convenient to use. The home processor is immediately aware of the problem of convenience. He does not have to wait six or eight months to see how the product turns out. *He wants a package that is convenient to fill.* "Why do packages for home frozen food open at the end?" "Why can't we have side-opening packages like the packers use?" The user who asks these questions has had enough of trying to pack fragile asparagus, broccoli or nonsymmetrical vegetables into an end-opening package. The end-opening package refuses to stand up self-respectingly and improvised equipment is necessary to hold the packages for filling if speed and convenience are to be achieved. Some users have abandoned the use of the end-

opening liner package in favor of one of their own invention, simply wrapping vegetables in cellophane and protecting them with stockinette as they do meat. Thus the interesting looking small "logs" in a home freezer turn out to be broccoli or asparagus.

The carton with an unglazed, unparaffined surface that sticks to freezer plates; the cellophane liner that sticks to the hand, that breaks at the crucial moment, that refuses to seal, are aggravations that cause one to turn to something else. The paraffined cube is convenient and saves space, yet it often leaks. The round tub container has a large following because it is easy to fill, easy to close and easy to empty. It stands on its own bottom and is sturdy and durable. It is convenient, yet it has a disadvantage its users recognize—it is wasteful of space. That brings up the second point in considering convenience.

A package should be convenient to store. It should fit into a freezer locker, home cabinet, or the freezing unit of the home refrigerator without waste of space. Zero space costs money. Zero space is limited. It must be used efficiently if the cost of the produce is considered, and if it is to take care of all of the products one wishes to store. Many more cubical or rectangular shaped containers as round ones can be stored in the same space. The flat rectangular package or cube is preferred by the user who considers the cost of his space and especially by locker patrons whose space is limited to six cubic feet. Freezer bags or envelopes are convenient to fill and seal, yet awkward to store.

Frozen food requires a continuous line of equipment. The last piece in the line is the home refrigerator. Here the day's or week's or two weeks' supply of frozen food will find its last storage. The manufacturers of the postwar refrigerator will take into account the increasing use of frozen food and the demand for low-temperature storage space in the home. It is to be hoped that the manufacturers of containers and the manufacturers of freezing equipment, whether it be locker drawer, home freezer, or home refrigerator will come close together and design equipment and packages that move from one piece of equipment to the next without waste of space.

Convenience in final use is important to the consumer. A container should be as easy to empty as it is to fill. *It should fit the needs of the family.* In the case of meats this is easily accomplished since the meat may be cut and wrapped according to the size of the family. Good locker plants have a custom meat cutting service, cutting meat according to the specifications of the patron. Where fruits and vegetables are concerned the problem is more complicated. Packages have not been standardized and are not uniform.

There is more or less confusion as to the number of servings to expect from packages. Where packages have come in standard pints and quarts the homemaker has made the transition in her thinking from her canning experience to freezing with less difficulty. Pints and quarts are a language she understands.

Because some packages have been difficult to fill, they have frequently not been filled to capacity. Time would be saved in filling packages and in keeping them organized in the freezer if larger containers were available for large families, or for use in entertaining. The two and one-half pound institutional package would fit many farm families.

Homemakers have no quarrel with the shape or the design of the customary commercial package. They like its flat, rectangular form. Its side opening is a feature that causes homemakers to open the package carefully and put it away against the day when it will be used for food of their own freezing. They would like to be able to buy the large package

9—*Well preserved chicken was packaged in water-vaporproof paper. Wrap was coated parchment; storage, 0 deg. F.* **10**—*This chicken wrapped in ordinary waxed paper, stored at 15 deg. F., is badly desiccated.* **11**—*Favorite is this "hunt-no-more" wrap, an easy-to-locate chain of ground beef in cellophane and stockinette.*

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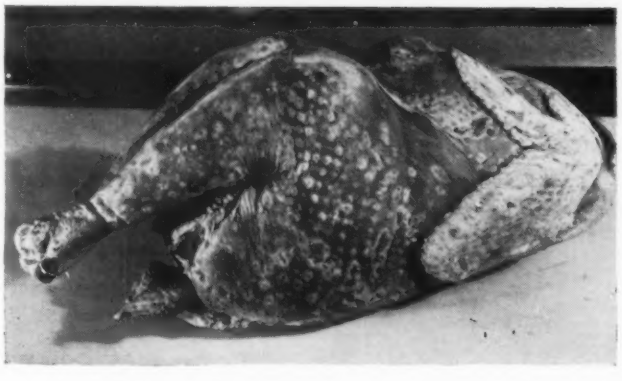

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available to institutions. The savings in cost as well as convenience of the large pack is of real moment to them. Commercial packages vary a great deal in weight. Green beans in a 10-oz. package, asparagus in 12-oz., broccoli in 13-oz., spinach in 14-oz., fruit in 16-oz. just does not make sense to the consumer. A standardization on the basis of the pound would have meaning. More and more products are coming to be sold by the pound. It is a basis for comparison of value and is of real assistance to the homemaker in spending her food dollar.

A package that would be of interest to the consumer of ready packaged frozen food and the home processor alike is one that would be collapsible or flexible to permit its being reduced in size as food is removed from it, thus conserving storage space. It would greatly facilitate the organization of a home freezer to have like products in the same package—as steaks in one package, chops in another, etc. Non-producers would like the opportunity of buying a large package of meat of one cut, or loose frozen fruits and vegetables, giving them the advantages of buying in quantity and saving frequent trips to the market.

Cost

Packaging for frozen food should not add too greatly to the cost of the product. Since packages are usually used only once, the cost factor must be considered. A cost of four or five cents per package seems too much to the home packer of fruits and vegetables. Housewives are in the habit of thinking in terms of glass jars, which are used again and again, or tins, which they use three times before discarding. The fact that some have considered packages too expensive to throw away after one use has led to their being re-used a number of times, a practice discouraged by authorities on home quick-freezing.

The package with a liner has an advantage in that it can be used again with new liners, provided it is of sturdy construction and has not leaked. The heavily paraffined tub or cube type of container has kept its usefulness for careful users over several seasons. The line of thought on the part of many locker operators and patrons has been illogical in that they put a few cents' worth of peas into a five-cent package, yet object to paying the price of good water-vaporproof wrapping for a steak worth a dollar and a half.

Many of the problems of today are inherent in the war situation. Supplies are limited, distribution is exceedingly poor, the consumer is uneducated in the value of various materials and in the knowledge of where to find them. Consumers have had very little opportunity for choice, having to take anything that was offered them. Retailers have been few and those in business have little variety. Many excellent materials have not reached the mass of consumers that have come into existence almost over night. Many difficulties will vanish when trade and distribution of these products are again normal.

Some of the difficulties the consumer has in using packaging materials would be lessened or eliminated by certain packaging accessories. The term "mandrel" is not in the vocabulary of home packers—yet some enterprising ones have fashioned a block on which to shape their boxes and fit the liners in place. Where a package requires a mandrel for successful use, it should be supplied by the manufacturer. The consumer should not be left groping for some solution for himself.

A funnel for filling packages is really a godsend—not just any funnel but one designed for the purpose, one that protects the exterior of the liner from moisture as well as making for speed in filling.

The consumer would like tape that really seals and stays sealed at zero temperature. Those who have used colored tape find it very useful in identifying packages in storage and are envied by the large majority who have been unable to obtain it.

Labeling packages has been another problem. The consumer has not known what to use or where to get ink, crayon, or pencils that make their mark on paraffined surfaces or stand low temperatures.

A sealing device with controlled heat will eliminate the uncertainty of the flat iron or curling iron in current use.

Holders for cellophane rolls, stockinette and locker paper have been made at home by the handyman—but the handyman is absent in many households, and not just for the duration either.

The consumer expects that better packaging will be his after the war. He is not too concerned with the materials of which the package is fabricated so long as they result in packaging that gives adequate protection, that is convenient to use, and inexpensive to buy.

12—*Improvised consumer pack for fresh frozen doughnuts and cider.* **13**—*Even bread can be stored in home freezers. The waxed wrapper in which it comes from the bakery is adequate for several weeks' protection.*

12

13

1—*Although it will absorb its own weight in water, vegetable parchment has a very high wet strength.*

Vegetable parchment

A wet strength and grease-resistant packaging material available in more than 179 variations

*by J. R. Dufford**

The discovery of vegetable parchment in 1853 came, like that of many other necessities of today, by accident. It has been attributed to W. E. Gaine, an Englishman, who is reputed to have prepared a sheet of cotton rag paper made by hand for use in demonstrating a lecture. While examining the sheet, it accidentally fell into a receptacle containing sulphuric acid. On recovering the sheet, much to his surprise, he found that the sheet of hand-made cotton rag paper had taken on an entirely new form. Instead of being a porous, absorbent and opaque sheet of paper, that which he held in his hand was translucent. By further experimenting he found that no amount of soaking in water, or even boiling, had any effect on the product of this accident.

At first Gaine's Paper, as it was called, was treated as a scientific curiosity, and its extraordinary properties were described before the Royal Society of London by Bailow in the year 1857. Several years elapsed, however, before vegetable parchment was produced on a commercial scale with the establishment of a hand-made factory in London by Warren de Larue in 1861. Several years later it was produced also at Stowford Mills.

From these beginnings, the manufacture of vegetable parchment gradually spread throughout Europe. It was introduced in America in 1885 by Paterson Parchment Paper Co.

The preparation of vegetable parchment consists of two separate and distinct processes. The first is that of manufacturing the base paper called waterleaf. In order that the second process, that of parchmentizing, may be effectively conducted, it is necessary to exercise great care in the selection of raw materials entering into the waterleaf. Experience has shown that the purest cellulose produces the best results. Waterleaf for vegetable parchment differs from most papers in that it does not contain sizing or loading materials. Small quantities of either of these substances seriously impair the parchmentizing of the waterleaf to which they have been added. As the resultant finished vegetable parchment is in a large measure dependent upon the quality of the waterleaf, it is clear that the processing of the waterleaf require every care.

For many years cotton rags constituted the principal raw material for waterleaf manufacture. However, with the advent of high alpha cellulose type pulps, this material almost completely supplanted cotton rags as a raw material for water-

* Chief Chemist, Paterson Parchment Paper Co.

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leaf manufacture. There are still special types produced that require a very high-grade cotton rag or a high-grade cotton linter. The beating, jordaning and other refining operations are accurately controlled and measured by various methods that have been found to give waterleaf of suitable quality for parchmentizing.

Parchmentizing operation

The second process in the manufacture of vegetable parchment is that of parchmentizing. It is this process which renders the finished product so widely different from other papers. When properly prepared waterleaf is subjected to the action of sulphuric acid under suitably regulated conditions, a peculiar reaction occurs. It is based on the power of sulphuric acid to convert cellulose into a gelatinous mass, which for the want of a better name is called amyloid. When waterleaf is exposed to the action of the acid, the fibres of the paper are attacked by the acid which forms a coating or film of gelatinous cellulose, covering the fibres and filling the interstices of the sheet, cementing or bonding the fibres together into a coherent mass, which subsequently is not defibered on immersion or even boiling in water.

It might also be noted that during the parchmentizing operation, opportunity is available to alter the normal condition of the paper as regards pH or acidity and also to apply a number of substances that have been found useful to incorporate with the paper for use in special cases. On leaving the parchmentizing machine, the paper passes through a paper machine dryer and here, too, may be incorporated size tubs and various additional apparatus which are found useful in the application of tub sizing for special papers. It is at these two points—the parchmentizing operation and at the dryers—that the basic changes in the characteristics of the paper are controlled. These steps have much to do with making possible the 179 types of vegetable parchment available for practically every packaging need.

Vegetable parchments of normal manufacture have a considerable weight and size range. Weights range from 25 lbs. to 120 lbs. per ream (500 sheets size 24 by 36). Huge rolls about 7 ft. wide and of endless length can furnish sizes and shapes for almost any purpose.

Vegetable parchment may be considered as practically pure

2—Vegetable parchment may be boiled for hours without losing wet strength. **3**—*Normally translucent, it rates 45 to 60 on Bausch & Lomb opacity meter.* **4**—*Smoked ham contains 39½% moisture, needs insoluble and greaseproof wrapper. This is 40-lb weight.* **5**—*Fish products are among largest users of this wrapper material.*

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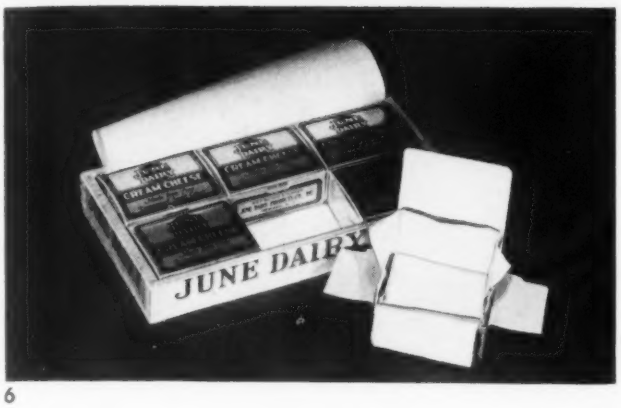

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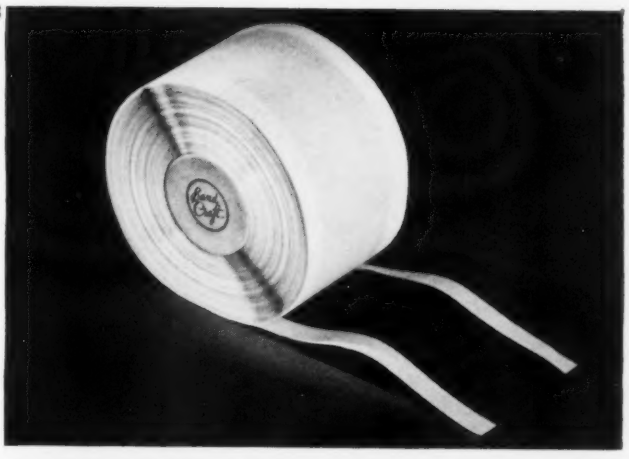

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6—Inner liner of 25-lb. vegetable parchment, waxed to 29 lbs., helps seal in the freshness of cream cheese. Outer wrap is metal foil. **7**—*Continuous strip of 30-lb. parchment delivers sausage pats from package.* **8**—*Hatband ribbon is packaged in rolls of vegetable parchment to protect it from oil stains.* **9**—*Industrial products coated with protective oil can be vegetable-parchment wrapped.* **10**—*Familiar butter wrap uses 30-lb. vegetable parchment.*

cellulose in that the action of the acid has produced substantially only a swelling action on the cellulose, leaving no reaction products such as would occur in an ordinary double decomposition chemical reaction. It has an exceedingly low ash content, in the neighborhood of 0.1 of 1%. Acidity is approximately 0.01% as SO_3, although many papers have approximately one-third this acidity. The pH ranges from 5.5 to 7.0 for normal papers in the ordinary base weight range. The acidity and the pH, however, as we have pointed out before, can be altered by treatment with alkali or any suitable material during the parchmentizing operation, and here we have a considerable degree of flexibility. Residual salts exist merely as traces. Since the sheet does not contain other materials and because it is tasteless and odorless, it is particularly adapted as a wrapper coming into direct contact with foods.

Physical test data

As one might suppose, the physical characteristics of vegetable parchment may differ widely according to the use to which the finished product is to be put. For instance, one might parchmentize in a manner to sacrifice, let us say, Mullen, in order to bring out high tear characteristics, and vice versa. To continue along this same line, one might alter the parchmentizing in order to obtain maximum greaseproofness and with a resultant product having a lower tear and possibly a lower Mullen. Experience has shown that for normal vegetable parchment there is a balance between the physical tests of the paper compared to its greaseproofness. Wet Mullen test varies according to the type of parchment and is approximately 50% to 60% of the dry Mullen valves.

We find in the Elmendorf tear test that the sulphites range from 60% to 80% of the basis weight of the sheet, whereas

EDITOR'S NOTE: *Illustrations with this article show many pre-war packages, some of which are not available under current restrictions. They serve to show trends in uses of vegetable parchment which will be resumed when restrictions are lifted.*

11

12

13

14

the sulphates range from 100% to 130% of the basis weight of the sheet. In tensile strength, pound per inch width, the sulphites tested with the grain direction range from 60% to 75% on the above basis and across the grain direction from 30% to 40% of the basis weight, whereas the sulphates show 90% to 105% with the grain direction and across the grain direction 50% to 60%. It should be pointed out here that as in the case of parchmentizing to obtain various degrees of grease-proofness of the sheet, considerable variation in the physical test of the sheet may be had by altering the parchmentizing procedure.

We find that stretch figures will vary considerably also. For instance, with the grain direction, figures indicate 2% to 4% and across the grain direction approximately 4% to 15%.

Functional properties

While vegetable parchment will not disintegrate in contact with moisture or water, it has a water-vapor transmission rate in direct proportion to the treatments used in processing. When manufactured for certain uses its W.V.T.R. has been reduced to a value of 1 and lower. Here again the purpose to which the parchment is to be put must be considered, and if W.V.T.R. is not important, regular types can be used. Where the W.V.T.R. is of prime importance, special coatings can be applied to obtain almost any desired result.

One of the outstanding properties of vegetable parchment is its resistance to penetration of grease. Vegetable parchment for the packaging of greasy substances such as butter, lard, shortenings, etc., is able to withstand the penetration of greases, oils and turpentine over a very long period. The type of parchment to be used depends upon the kind of product package. Average tests would not be of value, for the range of performance of some 179 types of vegetable parchment naturally vary so greatly that a discussion of this subject would be lengthy.

When vegetable parchment is of a sufficiently heavy weight, it is substantially impervious to the passage of air.

Vegetable parchment wets readily with water and will absorb upwards of 100% of its weight, but due to the very high

11—*Wrap for fresh-frozen corn-on-cob is 30-lb. weight.* **12**—*Scored and die-stamped individual butter pats in printed vegetable parchment.* **13**—*As a vegetable wrapper it helps keep moisture in, wont "fog up."* **14**—*Inner 30-lb. wrapper for canned cheese protects flavor.* **15**—*Full-color, 30-lb. box liners lend sales appeal to cut poultry.*

15

degree of wet strength that it has due to the parchmentizing action, it will not disintegrate in contact with water. Vegetable parchment may be boiled for many hours without losing wet strength and this is a very important feature in the packaging of moist or wet food products. It may also be boiled in weak alkaline solutions, saturated salt solutions, without losing its wet strength.

Vegetable parchment is translucent and on the Bausch & Lomb opacity meter will read approximately 45 to 60. Here again, however, we have a fairly controllable variable in that the translucency of the parchment may be altered by the degree to which it is parchmentized, or by adding judicious amounts of opaque materials to the waterleaf, or by coating or sizing the parchment. The end use of the parchment would be the controlling factor.

The density or apparent specific gravity of vegetable parchment varies from about 0.78 to 0.95. The area in square feet per pound of parchment may be readily calculated by the following procedure:

$$\text{Area in sq. ft. per lb.} = \frac{3{,}000}{\text{Basis Wt.}} \quad (500 \text{ sheets } 24 \text{ by } 36)$$

Vegetable parchment, because of its inherent characteristics, high wet strength and the retention of this wet strength under very severe use conditions, and the fact that it is very grease and oil resistant, odorless and tasteless, is a very desirable paper for use in combination with other packaging materials. For instance, lamination to transparent cellulose sheets, lamination to metal foils, etc.

Vegetable parchment varies in price according to type selected for the use to which it is to be put. It has always been in popular demand as its cost is low when compared with materials which give the same full packaging protection—i.e., wet strength and grease-resistance. Vegetable parchment can be beautifully printed in one to four colors with color-fast inks. The design of the wrapper is controlled purely by the imagination and ingenuity of the artist commissioned to create the package.

Vegetable parchment provides (*Continued on page 152*)

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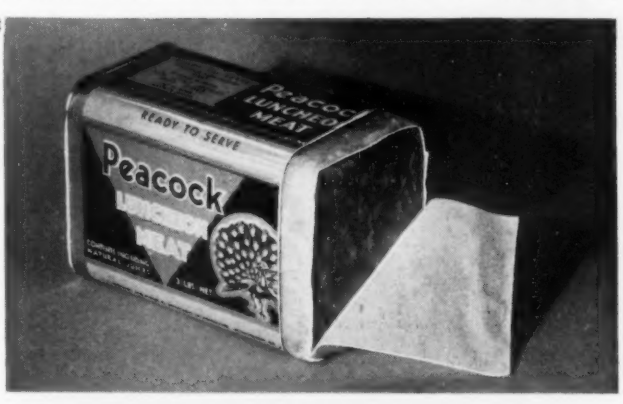

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16—*Extra protection to tea in cloth bags is provided by 30-lb. container bag.* **17**—*Vegetable parchment is of value for inner wrap for shortening.* **18**—*Keeps canned meats from contact with metal.* **19**—*Wrap for canned tamales is 30-lb. creped vegetable parchment.* **20**—*Individual 30-lb. wraps for canned herring.* **21**—*Protective hood for milk bottle caps.*

21

20

MILITARY PACKAGING *in jeep-time*

1

Too often the complexities of military packaging under rigid government specifications defy all efforts at putting packaging on a fully mechanized, conveyor-line basis.

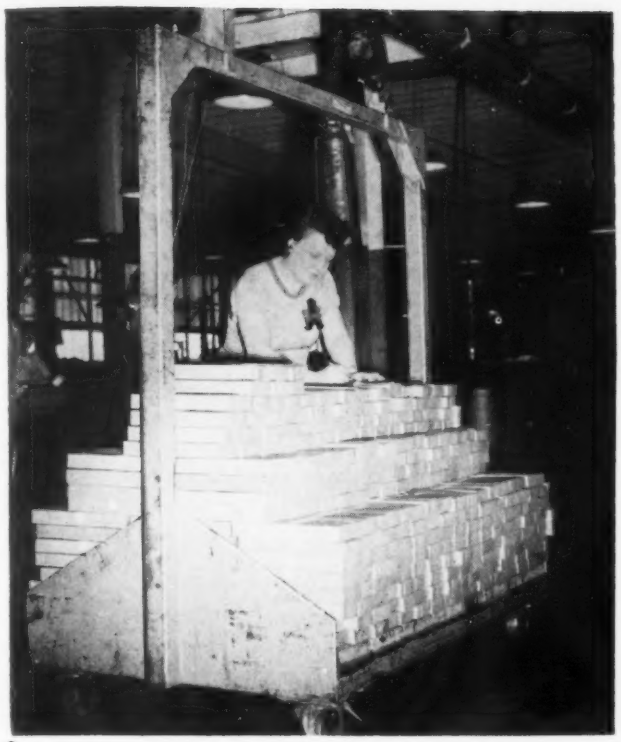
Credit, therefore, goes to Willys-Overland Motors, Inc of Toledo, for the development of a conveyor system which in a few weeks tripled the output of packaged spare parts for "Jeeps" and effected a 20% reduction in packaging costs. With the streamlined method—which covers preparation, packaging and storage—shipment of a line of 1,200 different "Jeep" parts is now close to 1,500,000 units weekly.

The Jeep replacement parts which were previously hand-dipped in rust preventive and wrapped in waterproofed paper are given the same protective coatings under the new system, but these processes have been placed on an assembly-line basis similar to that used for the volume manufacture of the scout car itself. As a result, the company can now move out 70-lb. export crates filled with these parts at the rate of one every 20 seconds.

The speed-up was effected by the installation of special

1—*One of the 4 conveyor belt sections on which thousands of Jeep parts are mass-production packaged daily. Note different parts in progress on each side.* **2**—*At points along conveyor belt many parts are sealing-wax dipped.*

2



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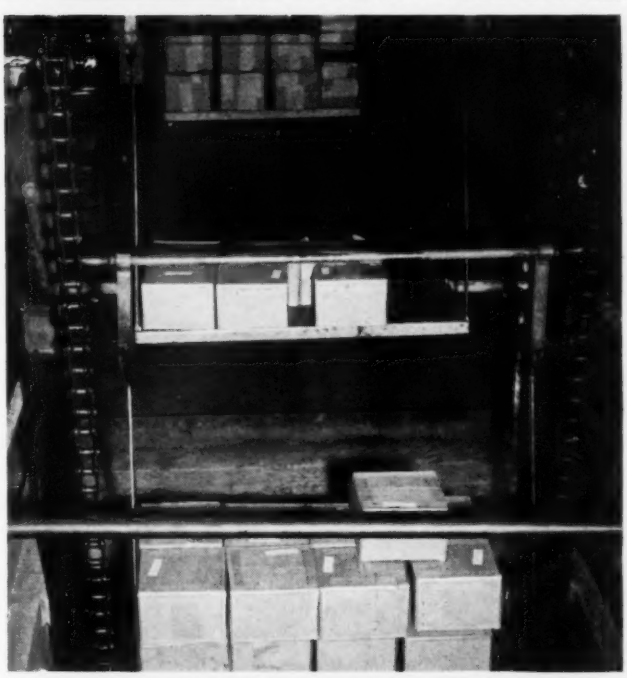

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3—Completed packages of Jeep parts ready for shipment are being conveyed to storage bins. Clerk makes entry on shipping tag. **4**—*Bins being filled with hundreds of thousands of cartons ready for shipment to American forces overseas.* **5**—*Conveyor suspending "trays" carries cartons from storage room to Export Dept. for crating. Both horizontal and vertical operation of conveyor is shown.* **6**—*End of the line is the Export Dept. Thousands of wooden crates of Jeep parts are shipped to combat zones weekly.*

machines for washing, drying and dipping parts automatically, an 8,100-ft. monorail system, twin belt-conveyor lines that move past women wrappers at an average speed of 10 ft. per minute and several hundred thousand cubic feet of storage bins.

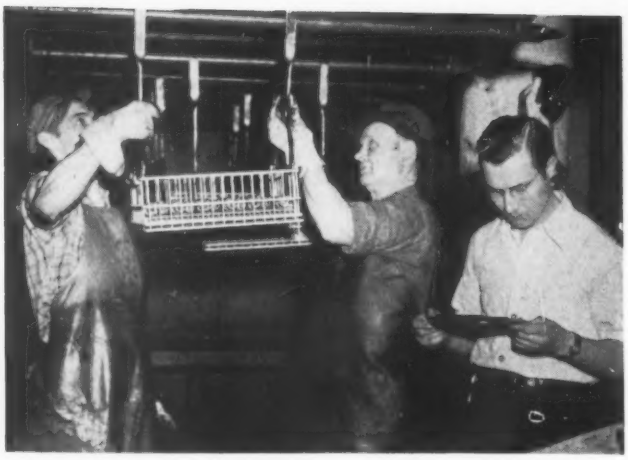
In the new system, parts received from sub-contractors or manufactured in the Willys plant are loaded into special-wheeled conveyor trucks at an outside loading dock. The conveyor, leading to the third floor at a 45-degree angle enters the Export Department at the beginning of the automatic dipping system.

At this point, the parts are unloaded from the conveyor trucks, inspected and placed in small metal baskets for the rust-preventive oil treatment.

The dip tank equipment consists of two parallel bar conveyors from which the metal baskets containing the parts to be treated are suspended. Each of the lines passes through an enclosed spray-washing system which cleans the parts thorougly.

The left conveyor goes through an alkali spray, followed by drying in a steam-heated oven at 180 deg. F. The right conveyor goes through a solvent wash, after which parts are dried by a compressed air blower. High precision parts are passed through the solvent, while other parts go through the alkali wash.

The conveyors lead to three adjacent baths of rust-preventive oils situated between the two conveyor lines and



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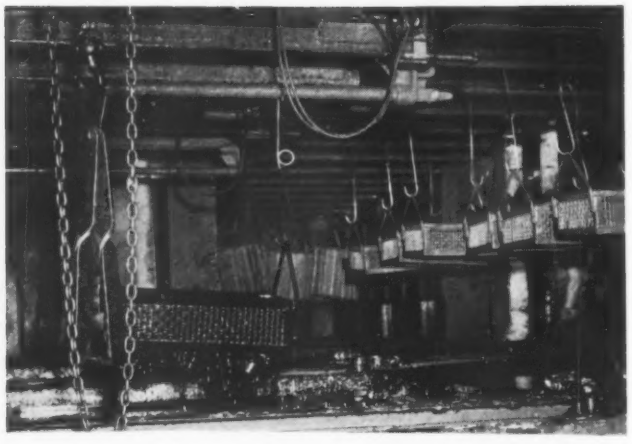

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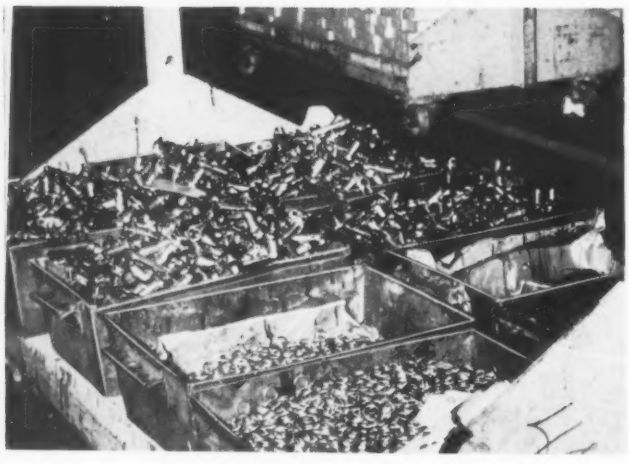

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parallel with them. Each bath contains rust-preventive oils for different classifications of parts. Pistons and camshafts, for example, are dipped in the first tank which contains a heated AXS-1001 oil. The second and third tanks contain AXS-673 and 674, respectively, the third being used only for bearings, and the second for less-precisioned parts.

The baskets are lowered into the appropriate oil bath by means of a unique cylinder valve arrangement which moves the bar and its suspended basket side-ways over the tank and lowers it into the oil. After a few seconds, the bar is raised and returned to its position in the conveyor line. Movement of the conveyor lines is automatically stopped during this operation. Baskets from both conveyors are dipped simultaneously, and they may be dipped into the same tank.

The automatic dipping system, designed by Willys plant engineers and built by an outside firm, is capable of handling 40 tons of parts each hour, or approximately four carloads of material daily.

Following the oil bath, the baskets are carried to the end of the conveyor, a distance of about 80 ft., during which time surplus oil drains from the parts, leaving an even coating.

At the end of the conveyor, the parts in the baskets are poured into other metal containers on wheeled conveyor trucks. After loading, the trucks are connected to the overhead conveyor for delivery to the packaging department. The trucks, attached to the overhead line, are rolled along the floor or suspended, depending upon the area which they must traverse.

Enroute to the packaging department each group of parts is given a tag which identifies it for packaging operations. Upon arrival, the conveyor trucks are unloaded and made ready for wrapping.

The packaging department consists of two parallel belt conveyors, each 300 ft. in length, and each divided into two 150-ft. production sections. The truck conveyors completely surround the packaging department so that parts may be unloaded at any one of the four production starting points.

The packaging belt conveyor, approximately 3 ft. wide, moves at an average speed of 10 ft. per minute. Women workers, seated along the line of the packaging belt conveyor wrap, dip and place the parts in cartons in a number of stationized operations along the length of each of the 150-ft. lines, each worker performing a special task. At the beginning of the line, for example, small parts are placed on the belt with the requisite wrapping paper, cut to size, beside them. At the next point, an identifying tag is attached, and wrapping, dipping and other operations follow in sequence as the belt moves past the various stations until the unit, completely packaged, is removed from the belt.

There are three types of wraps most commonly used for overseas packaging. They are (*Continued on page 148*)

***7**—Wire baskets containing parts are suspended from bar conveyor at beginning of automatic rust-preventative dipping system. Inspector in foreground checks precision parts before they go into solvent washer.* ***8**—Basket of Jeep parts being raised from one of the rust-preventative oil baths. Bar, motivated by a compressed air valve, returns to position in line following dipping.* ***9**—Baskets of dipped parts are emptied on conveyor trucks at end of automatic dipping system.* ***10**—Two identical conveyor trucks—one in foreground takes parts to packaging department, other carries packaged parts to storage bins.*

Meeting new QMC food label specs

With co-operative effort being brought to bear from all sides, the mountainous problem posed by the Quartermaster order banning paper labels from food cans is being reduced rapidly to workable proportions. Many millions of cases of pro-coated or otherwise properly protected cans will be shipped overseas this year.

Pro-coating is favored by the Quartermaster Corps and is being adopted generally as the most practical means of meeting the new specifications. This is a method of dipping the can, after packing, in a special, quick-drying flat, olive drab rustproof enamel, which protects the entire can including seams. Label information may then be imprinted with a special black ink.

Procurement officers have been given definite quantities of each item to be packed in pro-coated cans. At present, however, the uncoated cans, properly marked but without paper labels, are being accepted to some extent for export shipment, although it is preferred that these cans be lacquered before or after packing. A lacquer coating is mandatory if the metal is electrolytic or bonderized plate, or of less than standard hot-dip tin weight.

The decision to ban paper labels followed months of experimentation by the Army, the National Canners Assn. and the Can Manufacturers' Institute. Various types of so-called waterproof labels and adhesives were tested, and although some of these gave impressive results, it was concluded that in the extraordinarily humid tropical climates any spot of adhesive under a paper label was an invitation to rust, corrosion and serious loss. No sure way was found to prevent moisture from collecting under the labels.

Because of the impossibility of determining, at the time of purchase, the climatic conditions which canned goods might come up against, it was decided to enforce a uniform policy of protective enameling and marking, eliminating paper labels. Considerations of camouflage and of paper labels coming off in shipment are minor factors in this decision.

While it is intended that the no-label policy apply to all Army purchases of canned food, it is not now—and perhaps never will be—possible to apply this policy 100%. The result is considerable confusion as to what cans should or should not be labeled. Washington officials of the Quartermaster's Office state that the policy applies to Army overseas orders only—not to Army domestic consumption, to Lend-Lease, to UNRRA or other Governmental agencies or to Navy orders.

Officials of the Jersey City Quartermaster Depot, however, who do the actual purchasing, make a clear cut statement which can be phrased thus:

"All Army purchases are unlabeled. A portion of the Navy's purchases, which are painted cans, are unlabeled. Balance of Navy's purchases and purchases for all other agencies are labeled. Each one of our field buying offices has given each canner a schedule showing the type of packing for our purchases of each item due from him."

Actually, enforcement of the order is in the hands of field procurement officials, and it appears that the only safe policy for each canner to follow is to consult the field buyer who handles negotiations with him. It is understood that field buyers have given each canner a schedule clearly outlining the type of packing for each item of that canner's set-aside quota.

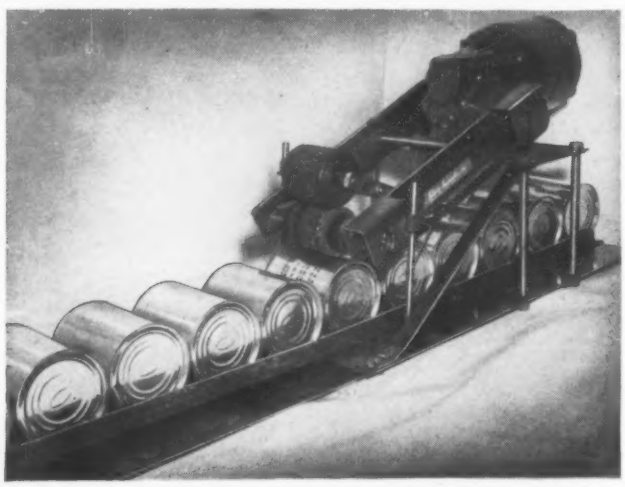
Jersey City officials, in negotiating individual contracts, are stating the proportion of each order which will be accepted in coated and uncoated cans, labeled and unlabeled, depending upon the facilities available to each packer. Steady pressure will be exerted, however, to obtain as high a proportion of coated cans as possible.

It is expected that the bulk of the pro-coating program will be handled in more-or-less home-made equipment in individual canneries and canners are cooperating with each other to perform the coating operations. Plans are under way, however, for the establishment of at least a half dozen pro-coating centers at strategic points to which a number of packers will send their canned foods for coating in large, automatic equipment.

In addition to the quantities designated to be pro-coated, the can companies will, to some extent, furnish cans which have been pre-coated, thus further protecting export ship-

1—Plain cans printed with a simple rotary printer. All essential label information, including company and brand name, can be imprinted, although in some cases (4th can from left) identifying code numbers are used.

2



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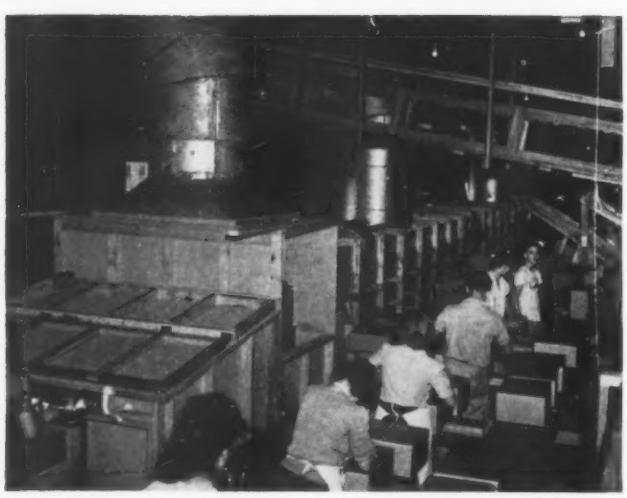

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ments which would otherwise have gone out in unlabeled, unprinted cans. Thus the can manufacturers have been relieved of their fears that they would be required to handle the bulk of the coating program.

Label manufacturers generally have accepted the decision in good spirit, viewing it as a temporary war measure of indisputable necessity. The net effect, it is expected, will be to make available additonal paper labels for civilian use. Equipment makers are too busy working out new machinery for the pro-coating process to worry about the effect on their business, but the consensus seems to be that there will be no insidious effect on civilian market during or after the war.

Army officials are careful to stress that they have no interest whatever in the grade-labeling controversy. Their only requirement is for a properly protected, camouflaged can bearing product identification; beyond that, the packer can imprint his own name, address, trade name, trademark or whatever information would appear on his usual label.

Apparently the only point worrying the canners is the question of how to dispose of surplus goods not used by the Army. The olive-drab can with black printing is distinctly lacking in sales appeal and it is felt that any attempt to dispose of surplus goods in the civilian market would meet with opposition on the part of the public who might suspect that the cans were Army rejects, or off-grades. This is a question which remains to be settled.

The olive-drab paint being most widely used for pro-coating is based on an alkyd resin, which gives it extremely fast drying qualities. The paint has an advantage over lacquer in this respect and is also in better supply and probably less expensive. One manufacturer of the paint estimates that its cost is about 2 cents per case of No. 2 cans.

Label information is imprinted, after coating, by various inexpensive imprinting devices, one of which is illustrated herewith. These rotary printers can be installed at an average price of about $75. They are usually installed as an attachment to a regular labeling machine.

An alternative to imprinting, acceptable to the QMC, is to emboss the required product information. This is not entirely satisfactory, however, and is discouraged.

Some 35 to 40 pro-coating and imprinting setups have been installed in various canneries to date and this number is expected to mount to several hundred before the end of the year. Since they are largely improvised, these installations follow no set pattern, but they all perform the functions of dip-coating, draining, drying and imprinting the label data. The average cost of installation is about $3,500.

Accompanying photographs show one of the first such installations placed in operation, at the citrus-juice canning plant of the Polk Co., Tampa, Fla. Filled and sealed cans are loaded on six tracks at one end of the machine, conveyed to the dip tank where they are dipped in enamel, picked up by an elevator and transferred to conveyor rolls and taken through a drier where they are completely dried, with the aid of exhaust blowers, in five minutes. At the unloading end, the enamel is sufficiently dry to offer no pick-up to the

***2**—Lithographed cans are still acceptable, with customary brand and trade marks. **3**—Rapid, rotary imprinter now widely used for marking enameled cans. **4**—Over-all view of the coating installation at Tampa, Fla., showing dryers with exhaust blowers for removal of solvent. **5**—Loading six tracks of coating machine with unpainted cans which move directly to dip tank for coating.*

carton-loading operators. This machine is operated at normal room temperature and travels at a speed of 15 ft. per minute; approximately 280 forty-six-ounce cans are delivered each minute. The imprinting operation follows.

With such an installation, the rotary printing device usually is attached to the can labeling machine and simply replaces the usual paper label application after coating.

The printer operates on much the same principle as a rotary rubber-stamping device. The desired label information is embossed on a rubber roller, which revolves and prints as the can rolls underneath it on the conveyor. This roller simply replaces the usual can-spacing roller. The special black, quick-drying ink is applied by a contiguous felt roller directly above. The printer may be operated by a belt drive from the central power source or a separate motor.

These imprinters will, of course, operate equally well on plain, lacquered, pre-coated or pro-coated cans. It should be pointed out also that lacquered, lithographed cans, of the type long used by meat packers, are presently acceptable to the Quartermaster Corps, although some sources say that these pre-lacquered cans have given some corrosion trouble along the unlacquered side seam and additional "striping," after packing, may be required.

Individual cannery installations like that at Tampa are financed by the Government and assisted by high priority.

Where a half-dozen or more canneries are conveniently grouped, the large central installation for pro-coating is favored. Although the large automatic machines developed for these installations will cost in the neighborhood of $20,000, the per-can cost is expected to be approximately the same.

The big machines have been more-or-less co-operatively developed by several of the equipment firms. They are essentially a grouping of all coating, drying and marking devices in one machine. One has had a successful trial run.

This machine automatically takes the filled cans from the case, carries them through coating in the enamel by dipping, automatically drains them in 50 seconds, transfers them to a drying kiln for two minutes, and moves them from the oven conveyor to a track where the label information is inked on by such a device as described above. Completed cans are then automatically put in V-boxes, sealed and strapped.

Enamel is shipped in a concentrated form to which the operator adds a special reducer. Because of its concentrated form, the enamel can be adjusted (*Continued on page 156*)

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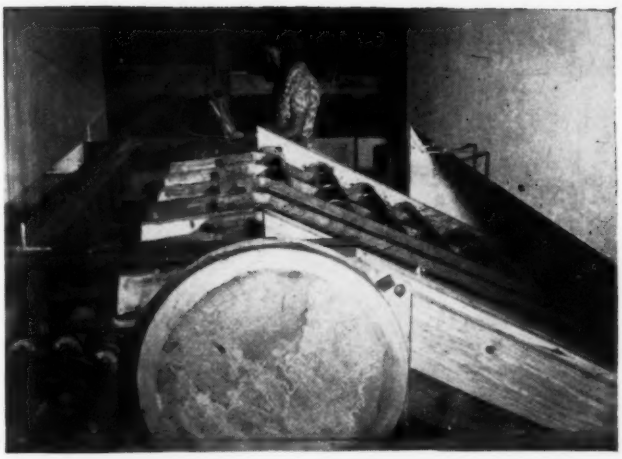

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***6**—Cans coming up on elevator from the enamel-dip tank.* ***7**—At this point the freshly painted cans are transferred from the elevator to conveyor rolls.* ***8**—Unloading end of conveyor, where finished, dried cans are placed in V-board cases preparatory to sealing and shipping.* ***9**—An overall view of Tampa plant setup from the unloading end, showing the sealing machine and conveyors.*

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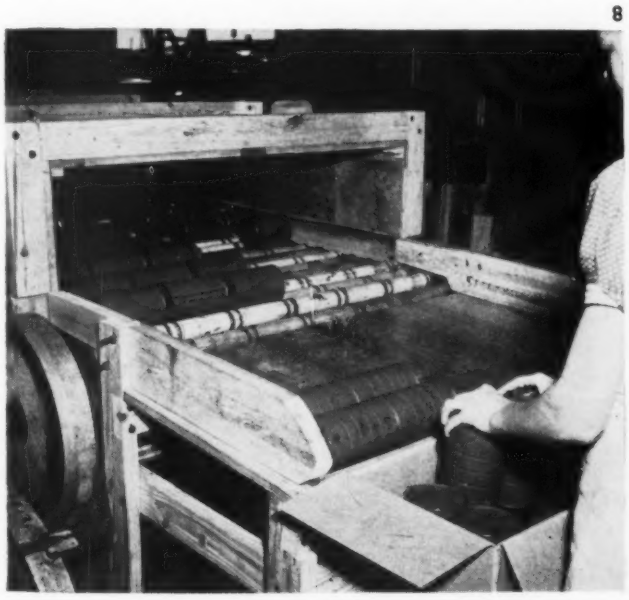

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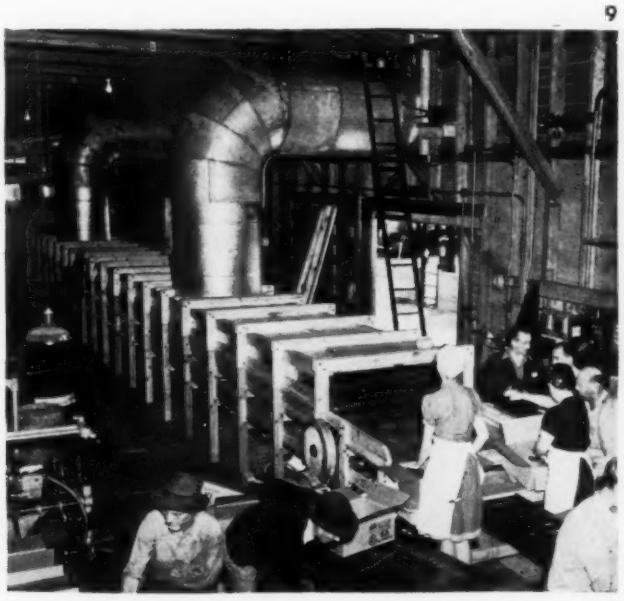


Shortenin' boxes

Corrugated fiberboard cartons with parchment liners are Procter & Gamble's answer to the problems of shipping, storing and handling their 50-lb. packs of shortening for bakers, hotels, restaurants and other bulk users during this period of packaging materials shortages.

Its square shape means that it will stack and store in less space than is needed for cans, tubs, drums or tierces. Also, it will handle easily from the time it is delivered until the last ounce is gone. Because of the sturdy materials used, it remains clean and sanitary at all times.

When only part of the contents are to be used the top can be cut on three sides only, bent back, the paper torn off even with the container edge, the contents dipped out as needed and the carton reclosed. A few added operations will unwrap the entire cube for immediate use. Its square shape makes it easy to cut the cube into measured portions.

Scraping down to remove every last speck of the shortening is simplified because the parchment liner is fastened to the container wall and, therefore, will not slip and slide as the product is being removed.

Credit: Cartons, Longview Fibre Co., Longview, Wash., Container Corp. of America, Chicago, Robert Gair Co., Inc., New York, Mengel Co., Louisville, Ky., and Gaylord Container Corp., St. Louis, Missouri. Liner, Mehl Mfg. Co., Cincinnati.

DESIGN

Ceramics on glass

A little imagination—a flair for the unusual—result, a custom-like container for perfumes out of ordinary stock bottles. Corot, in order to maintain the reputation earned in prewar Paris for unusual packaging, has managed, despite wartime shortages, to dress up his American line with the use of ceramics and carefully selected bottles.

The rose-colored ceramic flower which is used as a distinguishing mark on all the bottles for his flower scents is attached to the stock bottle by means of a special adhesive by the perfumer himself. Pastel ceramic screw tops in harmonizing colors add distinction.

The set-up box for the perfumes has a velvet-covered platform base to hold the bottle of perfume securely. The outside of the box top is covered with a velour-finish paper in various colors. A different color is used for each scent for shelf identification purposes.

The entire line of Les Parfums de Corot is outer-wrapped in such a way as to maintain a family resemblance. Different color combinations identify the different odors. For example, "Narcisse" is wrapped in yellow paper and tied with brown satin ribbon while Dalila is in rose with brown.

The folding cartons for the eau de toilette need no outer wrap as the cartons themselves are ordered in the desired colors and the corresponding ribbon and label are applied when packaging.

Credit: Bottles, Swindell Bros., Baltimore, Md.

Space-saving stacks

Secondary packaging of many glassed products has been abandoned for the duration. Since its chief advantages have always been for protection, display and stacking purposes, Sanford Ink Co. approached the problem of eliminating the extra packaging with intelligence and realism.

They settled upon a narrow sleeve which holds two trays of six bottles each and closes by means of a slip-cover which can be discarded. Upon opening, the end of the sleeve is revealed to be cut back at an angle so that both trays of bottles are displayed.

Since each unit display carton is only $2^3/_8$ in. by $5^1/_4$ in. by $10^3/_4$ in., a complete display of eight colors of inks can be shown in a 20-in. shelf space.

In addition, the display need never have empty gaps. Bottles can be pulled forward as one is sold and, as each tray is emptied, another one can be slipped into its place and the display stays neat at all times.

This carton is one which, in all probability, will have a postwar life because it is not only an economy but, at the same time, it is an improvement, according to the company, over the prewar overpackaging of inks.

Credit: Bottles, Hazel-Atlas Glass Co., Wheeling, W. Va., and Brockway Glass Co., Brockway, Penna. Cartons, Carton Craftsman, Chicago, Ill.

HISTORIES

Pestless victory gardens

A pestless victory garden is the unattainable dream of every amateur farmer. This year, however, The Courtman Chemical Co., provides the suburban gardener with the means to keep pests under control and his plants in the best of health—and it all comes in one package.

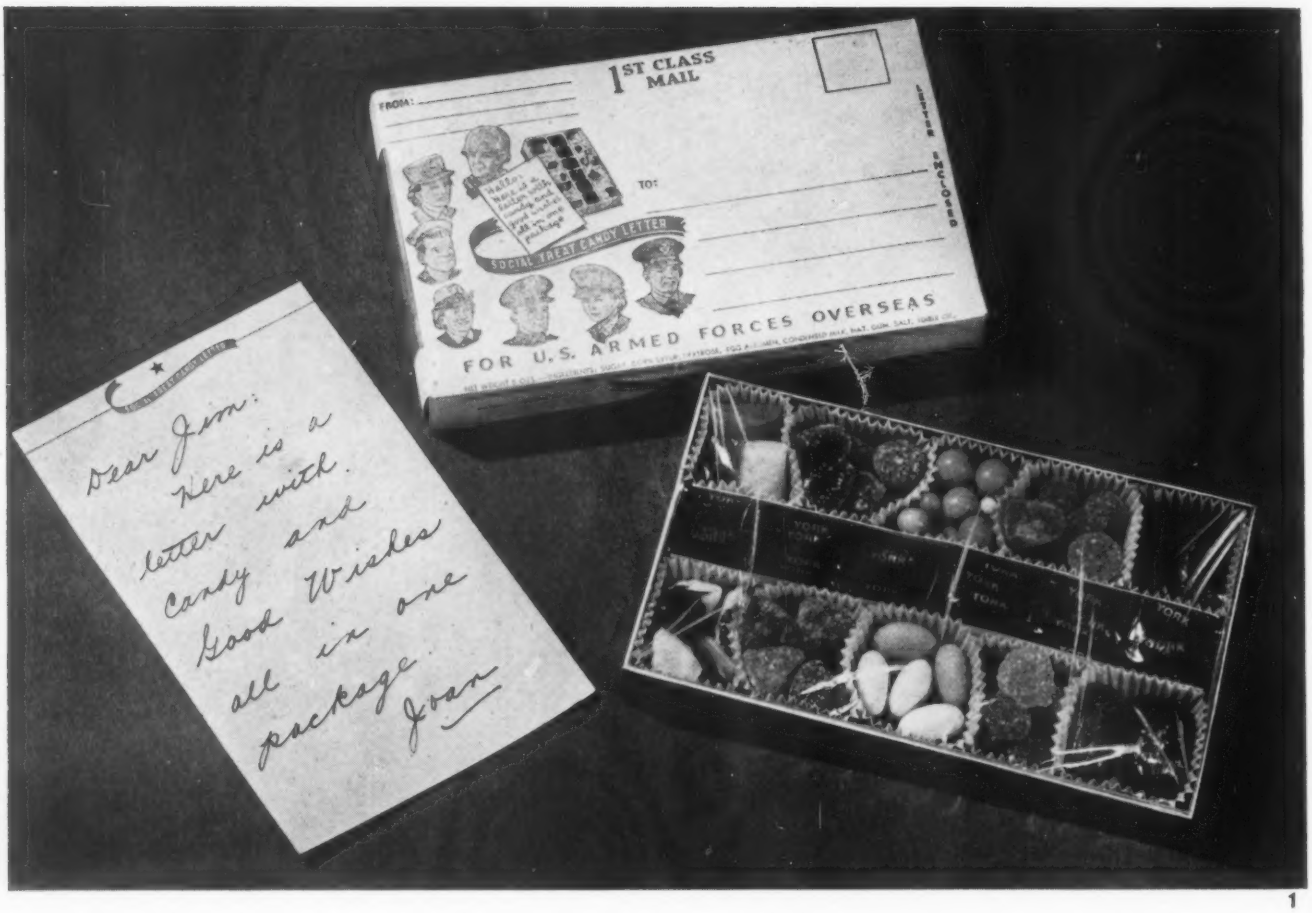
Into the large, duplex kraft bag in the background are packed all seven items pictured. The five smaller, duplex kraft bags hold various chemicals; the glass bottle with a metal shaker top holds "Maggotex," the seventh item is a home manual. This booklet gives complete instructions for the use of the kit plus vital information on planting and caring for the regulation 25-ft. by 50-ft. garden.

The labels and merchandising story are printed directly onto the bag in red, green and blue thereby eliminating completely the label-pasting operation. All the bags are closed by means of wire staples.

One of the obvious sales appeals of the kit is that the consumer need buy but one package. By selecting this inexpensive type of packaging, the company feels that the retail price of the unit can compare favorably with its competitors.

Included in each kit is the "Courtman Planting-Insect Control-Harvest Plan"—a chart which covers every operation through which the amateur gardener must go in order to enjoy the fruits of his labor.

Credit: Bags, Union Bag & Paper Corp., New York.



1

1—*The Candy Letter offers in one package two of the things the boys overseas want most—candy and mail. Letter blank is made of heavy stock to withstand many handlings by the sender, the censor and the recipient.*

Candy letter—

It's something for the boys—a personalized gift idea that has sold millions of packages in a few months.

Even in these parlous times, it is possible to build a business on a smart packaging idea—if that idea capitalizes on the limitations and necessities of the times.

An ingeniously designed little item called the "Social Treat Candy Letter," for mailing to servicemen and women overseas, is chalking up sales records all over the country. The manufacturer, the Prince Co., of New York, introduced the product in February, and is now turning out the third million without making much of an impression on the backlog of orders.

The product is a one-layer box of small candies, packaged to withstand the rigors of overseas shipment, with a letter enclosed. The candy weighs five ounces and the entire package weighs just under the limit of eight ounces that can be sent to servicemen abroad, by first class mail, without a written request. It retails at about 29c a package, and 24c postage is required for mailing.

S. Prince, who heads the firm that manufactures the Social Treats line of gift-packaged foods, thought of the Candy Letter as a means of satisfying in one package the two topmost desires that serviceman express: mail and candy. He started with the idea of keeping the weight under the 8-oz. limit. That, and the inclusion of a letter in the unit, governed the selection of the dimensions of the package. The outer carton measures $6^3/_4$ by $3^3/_4$ in., and is $^7/_8$ in. thick.

In planning the item, Mr. Prince took into consideration the fact that mail shipped to war zones may be subjected to enormous pressure—particularly if it happens to be carried in a sack at the bottom of a large pile. It may also have to withstand extremes of temperature. This governed the choice of packaging materials and the method of packing. These factors also influenced the selection of the candy to be put into the packages. The varieties chosen are small, so that the recipient may share with his buddies. There are about 50 pieces in each box—gum drops, caramels, fruit balls, dragees and the like. They are arranged in three longitudinal lines, with cardboard dividers separating them, inside a waxed cardboard shell (greaseproof and waterproof), with corners reinforced with cardboard. They form an attractive pattern, with the caramels in the center line and the brightly colored candies balanced symmetrically, so far as this is possible. Each two to four or five pieces, according to size, rests in a crinkle cup of waxed paper, which forms a pleasing frame for the group.

The shell containing the candy is covered by two layers of cellophane. The outer cellophane is moistureproof, extends completely around the box, and is glued on the

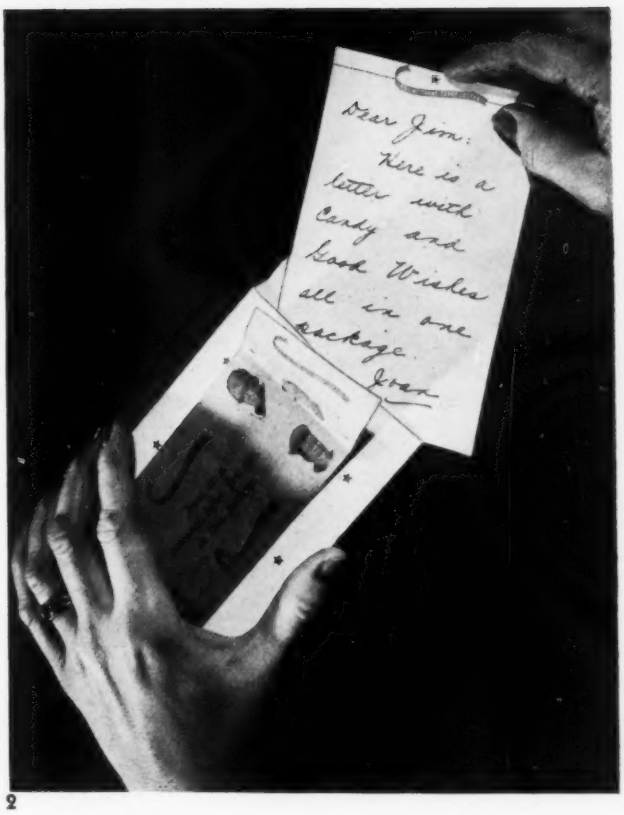
bottom thus forming a completely sealed, waterproof unit.

The two outer cartons, which arrive at the Prince plant flat, are of 110-pound, long-fibre white tag stock, sometimes known as "bottle cap stock." The inner sheet is folded into a carton shape about the filled candy shell as it arrives from the assembly line, and gummed kraft tape seals it across the center and over the ends. The sheet of stationery which gives the product its name is then placed loose on top of the sealed unit. The letter sheet is of card stock, to withstand several handlings—as the purchaser must pull it out from the package, then push it back in after writing the message, and one or more censors may handle it before it reaches its destination.

The sealed unit and the letter sheet are then enclosed in the outer wrapper, which also folds up into a box shape and is sealed with a wide strip of gummed kraft tape. One end, however, is left free, so that the sender may pull out the letter sheet and write his message.

The outer carton, decorated with drawings representing seven branches of the services, is printed in red and blue, by letterpress. It has on its face the usual lines for the names and addresses of sender and intended recipient. In addition to the group of heads of a Marine, member of Air Force, WAC, etc., it bears a drawing showing the candy inside the package and a suggested message, written in script. The words, "1st Class Mail," are shown prominently in red letters at the top of the label, and the words, "Letter Enclosed," in blue ink, appear vertically at the right hand side of the label, next to the space for the address. The trade name, "Social Treat Candy Letter," appears on the front and on each end and side of the package. The back of the carton is decorated with blue stars. Even the gummed tape that seals the outer carton is decorative, for it, too, has on it designs of blue stars, heads of servicemen and servicewomen, and the bowknot tradename of the product. Also on this sealing tape, there is the message, in legible blue script, "There is a personal letter for you in this package."

In analyzing the reasons behind the extraordinary success this item has enjoyed, it is well to note the emphasis on the letter function. Great care was taken in designing the outer carton to make sure that the sender remember to write the



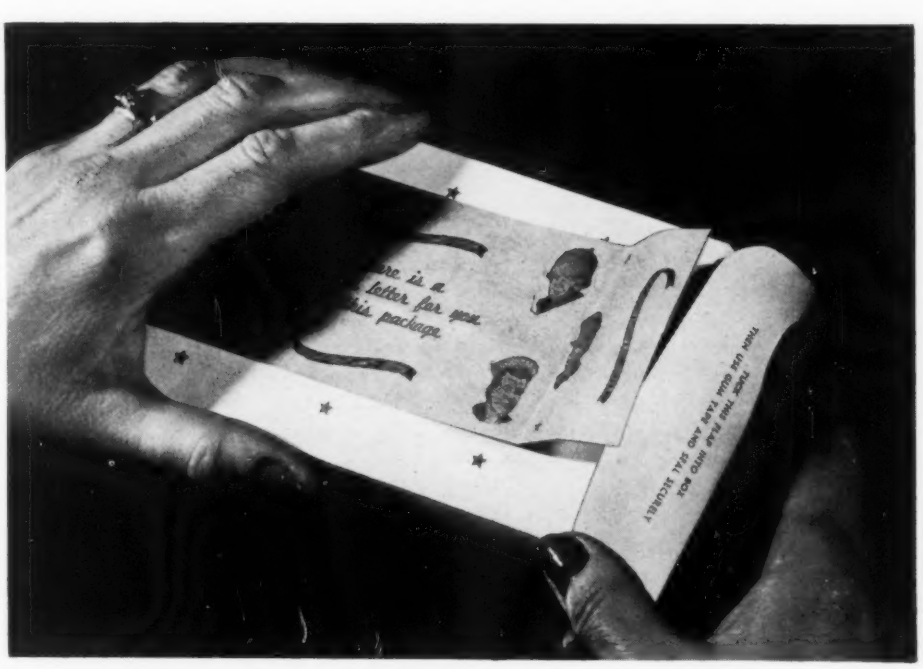
2

letter and that the addressee notice that the package contains a letter.

The basic reason for the popularity of the product is, naturally, the realization of the people at home that Americans in the war zones do want letters and sweets. But this product is easy to send. It requires no further packing, no trip to the postoffice with a request from the addressee, no weighing to determine the amount of postage needed. Many stores that sell it have put in special departments to handle it, and some also mail the packages for the purchasers.

Department stores like the (*Continued on page 152*)

3



2—*It costs no more to include a letter since the package must travel by first-class mail anyway.* **3**—*Instructions for simple sealing, with end of gummed tape left free, are imprinted on the closing flap. An address, the proper amount of postage—it's off.*

Your ink man can help you avoid mistakes

*by Jack Tonnsen**

Right after V-day thousands of new packages are going to be designed. More thousands of "prewar" packages and duration jobs are going to be re-designed. And once again the race will be to the swift. What helps an item move fast more than a first class package? What is a first class package? Please, don't ask me to answer that one. I'm just the ink man. I'm not supposed to know anything about the creation of a new carton, or tin can, or shipping case, or any other thing that can be called a container.

I know nothing about designing new packages. I realize this admission on my part is the most important part of my plea. But I do know some things about the production and reproduction of packages after they have left the designing department, been lauded and sold to the manufacturer or distributor and an order placed with the fabricating department for ten, or a thousand or ten million reproductions of "our new package."

Believe it or not, some printing ink salesmen have captured the romance of successful packaging to the extent that they really concern themselves with the success of the package itself. We still view an ink order for a new carton as some nice tonnage. But, we also know that if the new item "clicks" we are justified in anticipating bigger and bigger repeat business. Often we are disturbed by faulty design to the point where we will fight back through the sales department of the container manufacturer in one grand effort to get at least a portion of the job changed. Why? Because his is a positive approach to the problem.

There are a lot of risks involved in this procedure. We may incur unfriendliness to the point that if we continue our push, a nice ink account may go by the board. Sometimes we succeed and a tiny line of type is removed from a reverse plate and moved elsewhere on the package, enabling the pressroom to deliver faithful reproduction. Most of the time we don't succeed. Why? Because the plates are made—or the job is in a hurry—or we've been waiting for the stock and now that it's here we have to start—or it's too late now the job's been "made-ready" for two days and now we need some ink—or hurry up and get it down here. Incidentally, while you are formulating it pull a couple of rabbits out of your hat, because our pressroom foreman doesn't like the looks of that one corner on the front panel. I could go on, and on, and on.

Well then, what is the trouble? Have you gathered the idea that I would like to move the designer's studio back into one corner of the printing pressroom? Do you think it is my desire to stifle creative genius by imposing limitations marked by boundaries now prevailing in the fabricator's plant? Not at all. I respect the creator of a new package far more than he'll ever give me credit and I have learned from experience that we very seldom have any trouble reproducing the works of the really great ones. Why? Because they invariably come forth with something easy to reproduce; depending in great measure on their selection of type, arrangement of detail and balance of color to create the effect desired. And to the writer it always seems that they have prefaced their planning by determining in advance just how the new package is going to be produced. What's the result of this planning? A box is born that has a chance. Most good-looking packages are easy to reproduce.

The author in his role as "the Ink Man" going over the plans for some new cartons in a local printing plant.

All the jobs that have been an immediate success with Mr. and Mrs. John Q. Public are duck soup to print. The really great creations from the designer's board generally go right on through processing from the order desk to the shipping platform without a hitch. When a job is hard to print, the public senses it in some way or another, regardless of the pains taken in production to insure a perfect print.

There are so many questions that should be answered before the plates are ordered. What is going into the box? What is this one expected to do? Is this package going to be a part of a window display? Is it going into a freezer counter? How are these things distributed? Tight pack? Loose pack? A conscientious ink salesman will, at times, ask any or all of the above questions when he takes the order for the colors used to produce the new gem in quantities. After all, we are just as anxious as anyone to have it displayed with pride where it will sell immediately. What sort of stock will be used? What printing process will be employed?

Here is an outstanding example: A gelatin box going to press had half-tone dots surrounded by a mass of color. On a job of this kind a compromise had to be made and the color in question was the flavor identification of the pack. It was impossible to persuade the carton man to consult with his buyer to change the design. The result—a job that was a

* Hill-Hentschel Co., St. Louis, Inc.

sore thumb all the way through the plant. The re-order went to a competitor who replaced the dots with line drawings enabling the pressman to carry full color. This shipment was made ahead of schedule and the carton is a constant repeater.

Faulty design, from the ink man's viewpoint, exists also on shipping cases. This is one field in which the commercial typographer has shown too little enterprise. Or did someone slam the door in his face—someone who does not realize that innumerable impressions from a line of type soon dissipate any extra charge involved in the creation of something as sensible as it is attractive? Too often do you see FRAGILE in big bold letters inviting one to do combat. A line of descriptive type in one color, easy to print, easy on the corrugation, would tell the story in a way that the most careless freight handler would understand.

I have a shipping case in my office that has this message on a top half panel in a space 9 in. by 4 in.—GLASS HANDLE WITH CARE USE NO HOOKS THIS SIDE UP KEEP IN A COOL PLACE—all set in bold face type and probably never read since the die was tacked on the printer slotter. On the front panel of this same case is a big reverse plate that says absolutely nothing. This measures 12 in. by $3^1/_2$ in. Nice for the ink man, you say?

Yes, it is nice for a while, but this is the kind of treatment that sours manufacturers and distributors on display printing on shipping cases. After all, they are paying for increased sales when they buy another color. I feel certain that the ink industry generally would rather that a design be created to help that extra color do its job.

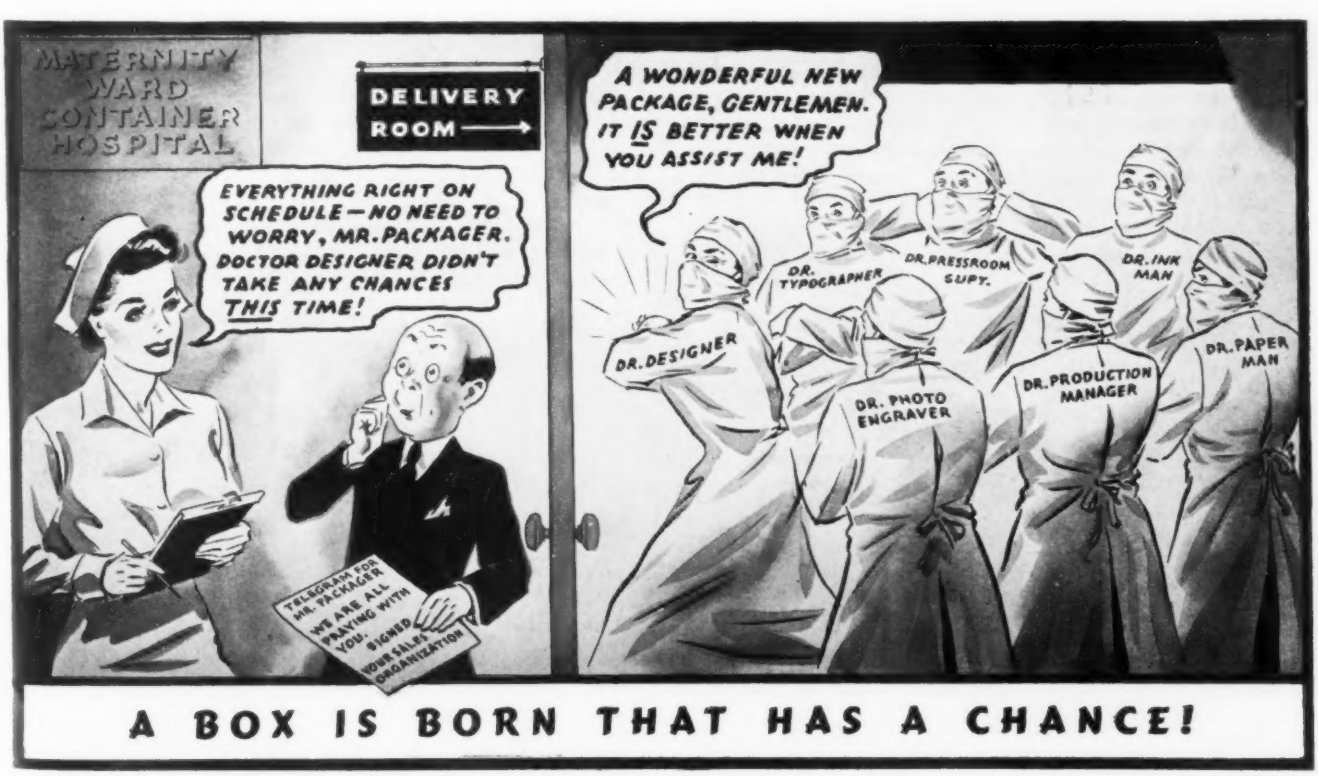
Who discovered printing ink? Where does it come from? Civilization is indebted to China for many things and none more important than the evolution of printing ink. We say evolution advisedly. Ink was not just discovered. It was the result of several centuries of painful trial and error. The first authenticated examples of printing is found in 927 A.D. when certain volumes were printed from stone blocks for the Imperial College at Peking. The characters were cut into the surface of the stone so that when printed they appeared white on a black background. It wasn't long before wooden blocks were used on which the characters were raised and the printed page appeared with black characters on white paper. Plain varnish was first used by the Chinese and was quickly followed by lamp-black. The development of printing, and consequently ink, was slow in the Orient since the characters of the Chinese language were difficult to set up. It was only in the sixteenth century that printing received an impetus and took its place among the arts in Europe. During the latter half of this century, printers began to divorce the ink manufacturing process from their own business.

One very honest printer gave the following reason: "The process of making ink is both laboring to the body. . . to the sense, and, by several odd accidents, dangerous of firing the place it is made in."

Things have changed since then. After the invention of the printing press and with the coming of the machine age, the demand for printing ink grew by leaps and bounds. We thought it reached its peak in the "tin can" era that marked twentieth century living. The basic elements of ink had not changed but an exacting world had brought forth refinements of texture, durability and standard quality.

Thirty years ago, the printer who wanted to buy an ink did so from a specimen book just as the merchant bought his goods from the catalogue of the clothing manufacturer. He had a limited choice in reds, blues, black, etc. Today he demands and receives any color he may desire, including a few he conceives himself. The dominating color in a recent advertising campaign was ordained by the customer because it reminded him of his wife's hair. Nowadays, if a manufacturer fills an order he keeps a small sample in case the customer comes back for a repeater ten years later. It is one way to insure the perfect matching of a color.

Ink and paper are the Scylla and Charybdis of civilization and it would be impossible to (*Continued on page 148*)


MATERNITY WARD CONTAINER HOSPITAL
DELIVERY ROOM
EVERYTHING RIGHT ON SCHEDULE—NO NEED TO WORRY, MR. PACKAGER. DOCTOR DESIGNER DIDN'T TAKE ANY CHANCES THIS TIME!
TELEGRAM FOR MR. PACKAGER WE ARE ALL PRAYING WITH YOU. SIGNED YOUR SALES ORGANIZATION
A WONDERFUL NEW PACKAGE, GENTLEMEN. IT IS BETTER WHEN YOU ASSIST ME!
DR. DESIGNER
DR. TYPOGRAPHER
DR. PRESSROOM SUPT.
DR. INK MAN
DR. PHOTO ENGRAVER
DR. PRODUCTION MANAGER
DR. PAPER MAN
A BOX IS BORN THAT HAS A CHANCE!

1

2

PACKAGING

1 A combination wood and metal packing case developed by the Wright Aeronautical Corp. for their 2,200 horsepower, Cyclone engine requires only 70 lbs. of steel in contrast to the 300 lbs. formerly used; it saves 500 lbs. weight per box, and empty, it can be reshipped 32 to a freight car instead of the usual ten. Built in prefabricated panels of plywood and solid lumber, it uses double thickness for top and bottom and a 1-in. tongue and groove for side and end panels. The complete package is secured by four steel bands and it can be collapsed for return by two men in 20 minutes. The transparent window built into one end is for inspection purposes. This box has many postwar possibilities. Photo, National Lumber Mfgrs. Assn., Washington.

2 Dehydrated bananas in cellophane is the answer to the shipping problem for this fruit in these days of curtailed shipping space. Little & Co. is importing the dehydrated fruit from Mexico packaged there in one pound and half-pound sizes which resemble a packet of figs. Little & Co. packages dehydrated spinach in a fibre container with metal ends. The housewife, says the company, can now buy the same amount of spinach as she would get in a number 2 can, without ration points. Banana packaging, Deshidatradora Nacional Mexico City. Fibre Containers, American Can Co., New York. Labels, American Label Co., Chicago.

3 A new cream foundation base introduced by Primrose House is being marketed in a purse-size container made of reworked cellulose acetate. Of particular interest is the fact that the product is packed directly into the plastic without the use of any type of liner. Results are claimed to be quite satisfactory. A patented wedge-lock closure, which takes only an eighth of a turn to open or close, is a news item for this type of plastic container. Product name is applied by silk-screen process. Container, Harry Broder, New York. Silk screening, Creative Printmakers Group, New York.

4 Aircraft sextant cases molded from a phenol-formaldehyde material point the way to many postwar re-use cases for delicate precision instruments and other products where a re-use container is advantageous. These cases must be adequate for the instrument they protect since the instruments are the pilot's last resort after his compass or other standard guide has failed. While the sextants require no electrical energy and are unlikely to be affected by magnetic conditions they are, nonetheless, classified as precision instruments and do need extra protection.

The case, which weighs about ten lbs. (each half measuring approximately 5 in. deep and 10 in. square), is held together by self-tapping screws. The lettering on the cover half is included

5

6

PAGEANT

in the die mold and given a white enamel wipe-in during finishing. This technique, while completely utilitarian in this instance, could be adapted for decorative packaging with interesting effects. Material, Durez Plastic & Chemicals, Inc., North Tonawanda, N. Y. Molded by Rathbun Molding Corp., Salamanca, N. Y.

5 "It's a sentimental spring, as springtime always is in wartime," says Revlon, and to prove it they have brought out their newest rosy shades of nail polish, face powder and lipstick in these flowered boxes and named them "Tournament of Roses." The set up box in the background called "Hatbox" contains four products in the various rosy shades. The two smaller boxes, called "Match Box" and "Double Feature," contain three and two products each. Box, Martin Paper Box Co., Brooklyn, N. Y.

6 Bowman Gum, Inc., has been a leader in the 1-cent gum field for some time. Recently, however, upon deciding to enter the 5-cent field, they were faced with a packaging-material problem. A simple wax-paper wrap with a wrap-around label was chosen for the new line set-up and a shipping-display carton answered for outer packaging. Strikingly different colors were used for each of the three flavors which makes for better consumer identification. Labels, Lord Baltimore Press, Baltimore, Md. Boxes, Royal-Pioneer Paper Box Mfg. Co., Philadelphia, Penna.

7 Cans which formerly held insecticides now help American Armed Forces measure weather conditions in the stratosphere. Employing the vacuum-pack principle used in packaging foods, this container is made for the Willard storage batteries used by the Army Signal Corps in obtaining weather information by radio. The entire container, loaded with four batteries and a charging device, can be carried in a coat pocket. It can be pierced with a hollow needle, a supply valve turned, and the vacuum in the can and battery cells will draw the acid into the batteries. In from three to five minutes the charge is complete. Formerly this operation had to be done tediously by means of a needle syringe. Container, American Can Co., New York.

8 Six of John Middleton's "Best Sellers" are combined in a retail package which is made to resemble a favorite set of books. This folding carton which holds the pocket packs of tobacco was designed especially to merchandise all the favorite brands in one unit, for off-the-counter sale. Carton design, Virginia Engraving Co., Richmond Va. Carton, Wilson Paper Box Co., Richmond, Va.

7

8

1—*Four soap packages that are examples of onomatopoeia as to name and color. Swerl is 2 colors, others one.*

Soap cartons—*good soldiers in peace and in war*

*by Lane Marohn**

This is written while taking specific account of retail grocery packaging after more than two years of war. It is rather notable, when one is seeking the effect of the transference of package economy from peace to wartime conditions, that the externals of soap packaging closely resemble their prewar appearance.

In the midst of a retail scene of sometimes widely altered package identity due to war, we look for the reasons for this.

The prewar character of this group of soap packages—as with certain others that have made the translation from peace to war with scarcely detectable change in externals—was forthright, vehement in impact and without frivolity. The color economy generally employed was not in excess of two and frequently it was the irreducible minimum of one. Therefore, war scarcities exerted no marked influence toward change. It appears, and appropriately so, that the basic hue, in most instances was derived from "soap atmosphere" colors such as traditional blues, greens, and blue-greens. These hues, up to the present at least were in sufficient supply in the field of printing ink to permit retention of color identity. This use of a limited number of colors in consequence entailed a lesser demand upon war scarce metal for plates and, where there was need for replacement of plates due to wear, the simple character of the design obviated excessive man-hours of skilled labor in plate making.

In this connection, the thought may suggest itself that in view of the heavy ink coverage on all of these packages, it might have been a worth-while step toward conservation to reinterpret these designs for dominantly open face printing, against a background of the board's uncolored surface. This, though, would have entailed a new set of plates throughout, with the attendant consumption of war-scarce metals, making the saving of ink an insignificant factor by comparison. (Additionally, scarcity of bleaching agents in many instances would result in a board surface less white than in prewar times, making its visibility undesirable in large areas.)

Structurally, these packages resorted to an economical functional layout even in peacetime. With an eye to consumer convenience, they, practically without exception, employ closing and reclosing devices, or pouring spouts made out of the essential boxboard of the carton itself. The war's metal scarcities, therefore, effected no change in this feature.

It would seem evident that these containers succeed less through hypnotizing the user than through a forthright effort to educate as to the contents' qualities and uses. Advantage is taken of the side or back panels' surfaces to accommodate descriptive word copy and pictorial spots illustrating suggested uses.

From these observations it seems that as a group it might be entirely practical and profitable to make the re-conversion from war- to peacetime economy, again by means of identical externals. Since sound design, color and merchandising practice may be considered operative on enduring basic principles, they might well continue in their present form.

A feeling of uneasiness and discontent with the established order in packaging, however, seems inescapable in view of the fantastically wonderful postwar picture that has been promised. We are prepared to take in our stride such developments as cigarettes wrapped in glass fibre that will make ash trays unnecessary. We are quick to detect piquant possibilities in the promised ability to drive our car without touching the steering wheel—this by means of a photoelectric cell which is trained to a line painted on the highway. We withdraw all of our previous mental reservations against the airplane as means of conveyance, in favor of the helicopter built for two which we hope to find in our postwar garage. Blessings on the DuPonts for the intended new uses for Nylon—zippers, shoes, furniture, paint brushes, etc.—but we raise our voice with those of all of our sex, in preference for exclu-

* Director, Gair Creative Design, Robert Gair Co., Inc.

2

2—Oxydol and Super Suds, both two color jobs, are examples of rythmic design for dynamic mass repeat. **3**—*Another two color carton is the one for Lux which is an excellent, short name combined with memorable simplicity of package design.*

sive concentration on Nylon for hosiery, at least for a period of years after the war's end. We gurgle with delight over the magic of an automatic coin changer that will change dimes and quarters into nickels and contemplate with rapture the automatic beverage machine which removes the cap from the bottle and pours the contents into the cup. Perhaps most irresistible of all is the anticipated Eskimo Pie with a shatterproof coat!

Following are a few suggestions which, while less Alice-in-Wonderland in character, have practical application to the field of soap packaging for postwar merchandising. In the matter of surface protection against dampness, soapy hands, etc., these packages could gain added durability through the application of gloss or lacquer to extend the effective life of the package and protect the color against any tendency to bleed or fade in the presence of soap or moisture.

Since the point of sale might justly be considered the *point of use* rather than the point of purchase, there is a specific reason for the suggestion for a bathroom-use soap package devised to harmonize with its surroundings in use, rather than solely to "out-yoohoo" its shelf-mates. If a survey were to be made to determine the number of women addicted to bathroom laundering their number, quite probably, would be astronomical. If recognition were taken of this before designing and color planning the package for such informal laundering, both consumer and manufacturer would be much happier. Such a carton, in pleasant harmony with its surroundings, would obviate the use of the prewar decorated bathroom tins devised to contain soap flakes or grains. With evident display advantage, it might be executed in a variety of pastel backgrounds through one- or two-color planning and in complete harmony with the individual preference in bath accessory colors while still retaining brand identity in use.

A note of departure from traditional character suggests itself in exploiting the specific quality of the individual soap product. In a state of ideal merchandising, where no product might exist except one which demonstrates a margin of advantage justifying its existence among competitors, we might suppose a soap product whose outstanding quality is quick and abundant suds. Projection of this characteristic into the package design by means of a realistic and unmistakable pictorial of suds would serve the advantage of evoking at a glance the essential character of the product. Again, suppose a soap is outstanding for its quality of speedy and effective whitening action, the employment of the whitest possible,

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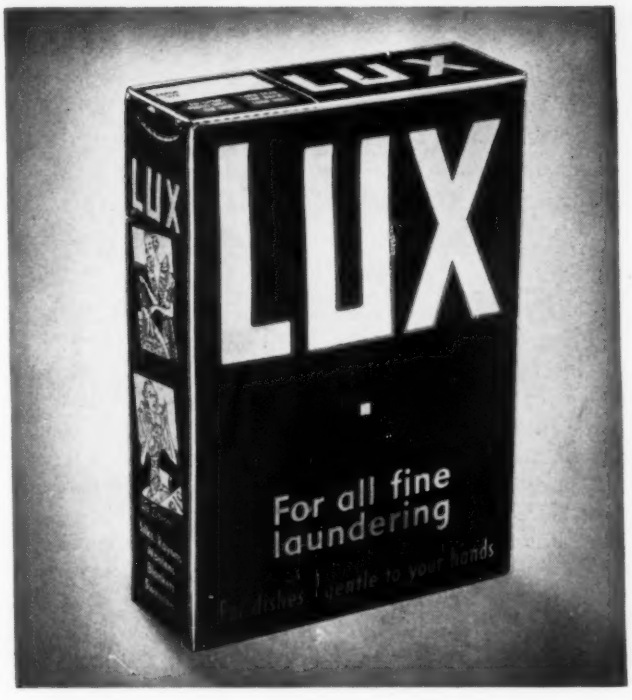


even flint glazed, combined board, might connote this quality effectively. By the same tokens, a soap product devised specifically for the most delicate and fragile of fabrics could suggest it effectively through a pattern of fragile and beautiful lace.

Wartime rationing has brought into the nation's buying habits a keen consciousness of the coupon-value-price equation, resulting in an extraordinarily value-conscious type of shopping. This habit is likely to continue even with the return of peace. To facilitate purchase under these conditions, it would be helpful to show the net weight clause somewhere, on the main panel of the soap carton. Current practice places this, according to individual design preference on any one of the six panels of the carton. This renders comparative value shopping a time-consuming, and arduous effort, especially in crowded markets. Consumers, in other groups of retail packagings, have become accustomed to finding this information easily on the main panel and they would welcome such additional convenience (*Continued on page 156*)

CASE HISTORIES IN WOOD

1—Believe it or not, that P-40 fighter came out of a box. The Curtiss-Wright plane is shown being unloaded from its wooden crate, at right, after arrival in the Far East. Army and press services report that these crates are salvaged to fill many emergency needs for men in the field. In Malta they have provided living quarters for civilians who were bombed out of their homes. Ten thousand of these crates, weighing from 2900 to 3600 lbs. each, have already been shipped to the Army.

Records of accomplishments in packaging and shipping difficult military items are now becoming available after many months of secrecy imposed by military restrictions.

Two of these accomplishments, both involving wood boxing or crating, are reviewed here for the lasting lessons which they hold for all shippers. Other interesting military methods are discussed in detail in two other articles in this issue ("Military Packaging in Jeep-Time," page 88, and "Roving Heat Sealers for Motor Wraps," page 108).

A hitherto unheralded accomplishment of the furniture-woodworking industry is disclosed in the announcement by The Curtiss-Wright's plants of more than ten thousand crates, or boxes, used for transportation of the famous P-40 Fighter planes to battlefields all over the world.

These are no ordinary boxes—one of them (for packing the fuselage) measures 7 ft. high, 30 ft. long, and 5 ft. 2 in. wide. It weighs 2900 lbs.

The other box or crate, used for shipping the P-40 wings, measures 35 ft. 6 in. in length, stands 10 ft. high, and is 4 ft. wide. This crate weighs 3600 lbs.

Fifty million feet of lumber were used in the production of these 10,000 crates and 1,250 railroad flat-cars were needed to ship the boxes in panel form or shooks (knocked down) to the Curtiss-Wright plants.

Two years before Pearl Harbor, when Curtiss-Wright and other American aviation companies already were supplying our Allies with desperately needed planes, the Mengel Co., Louisville, Ky., undertook production of these huge crates. December 1939 witnessed the first shipment to Curtiss-Wright.

These crates represent a truly Allied undertaking. Not only have the crated planes been shipped to Britain, Russia, China, Australia and our other Allies, but originally all lumber used in the crates came from Canada, principally white spruce. Later some American fir and hemlock were used.

Mengel turned over a good portion of one of its large plants in Louisville, Ky., to the production of this essential war product. Normally the company manufactures furniture in this plant. Almost 50,000 ft. of factory floor space were required for making the airplane crates. More than 162,000 sq. ft. of yard space were required solely for storage and curing of lumber needed for the boxes.

Since the cargo they were destined to carry was often a factor of life-or-death to our men at the war fronts, each airplane box was virtually custom-built by Mengel's workers normally employing their skill making peacetime wood products. No chance could be taken on destruction or injury to their precious cargo. As the Curtiss-Wright reports stated, "they're not handled too gently, and the weather is no respector of delicate mechanisms of combat airplanes . . . . To insure safe delivery of these vital fighters to war-fronts, they are packed as carefully as fragile china."

These crates were designed and built specifically to house as well as protect the airplane fuselage and wings. At the Curtiss-Wright plant they are examined almost as painstakingly as the airplane itself; everything in the crates has been manufactured to size from ends and sides to tops, bottoms and internal bracings.

Transported by train, ship and trucks, these crates and their invaluable war cargo have arrived safe and sound at their distant destinations. "P-40's that have traveled thousands of miles under all conditions," Curtiss-Wright men have reported, "are arriving safe and undamaged on all fronts every day, ready for immediate assembly and history-making flights in the battle skies."

Even after the crates arrive at the battle fronts and their P-40's removed and assembled for action, the huge crates have not completed their usefulness to the armed forces. The Army and press services have reported that the firmly built sections of the airplane crates fill a multitude of emergency needs for the men in the field and for civilians.

First, they provide a flooring for the preliminary assembly of the plane itself. The huge boxes frequently provide field offices, others are used for tool sheds. Occasionally some are used as mess halls for units out in the open fields, while in Malta they have provided living quarters for people bombed out of their homes.

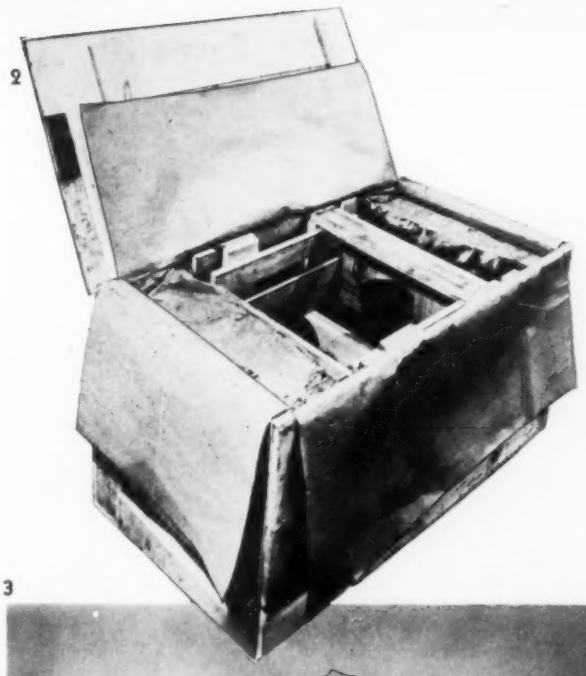
Also among the first supplies to be packed in full accordance with Army-Navy specifications were Carrier unit heaters, shown here in their new travel coverings and crates. Sent to advance bases where warmth is needed for personnel all or part time, these steam-type heaters are installed in shower rooms, latrines, kitchens and mess halls, and utility quarters.

So that they will be fit for use immediately upon arrival, the heater's various pieces are triply wrapped. Each part except the fan is sealed inside heavy, greaseproof, non-oxidized paper. It is then fitted snugly in a wooden box having a one-piece lining of waterproof paper. When all the items are in place, a tar-base adhesive seals this lining across the top like an envelope. This sealed lining, plus the wrappings on the individual parts, keeps out dust, sand, rain, snow and salt spray.

That the box lining be in one piece is one of the specifications now insisted upon. Others govern construction of the box. The framing is $1^{7}/_{16}$-in. lumber; previously, $^{7}/_{8}$-in. material was used. End-grain nailing is now prohibited, cleats having been added to make it unnecessary and to contribute new strength. Other cleats have been added to buttress the cover, and to hold the various packages solidly in position.

When ready for closing up, the box looks as if its contents had been packed more strongly than necessary. The explanation is that this interior strength is used for protection against outside forces—mainly, hurried roughness in handling, stowing, and unloading. Additional packing protection is required, too, by the fact that dunnage can no longer be stowed between cases of freight in ship holds. Dunnage's use in this way was eliminated by the necessity of making up shipments with items *(Continued on page 150)*

2



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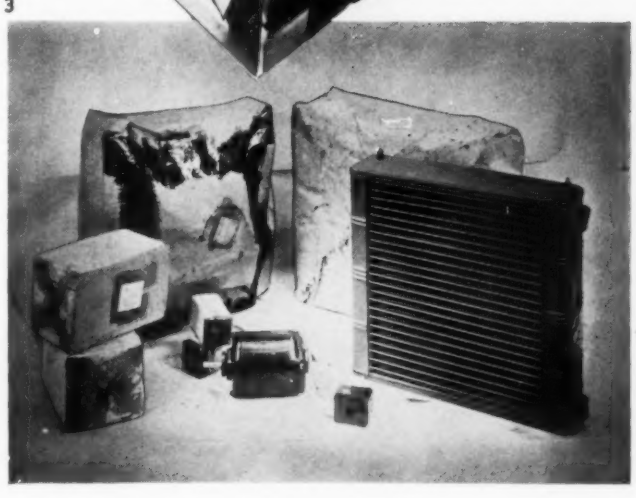
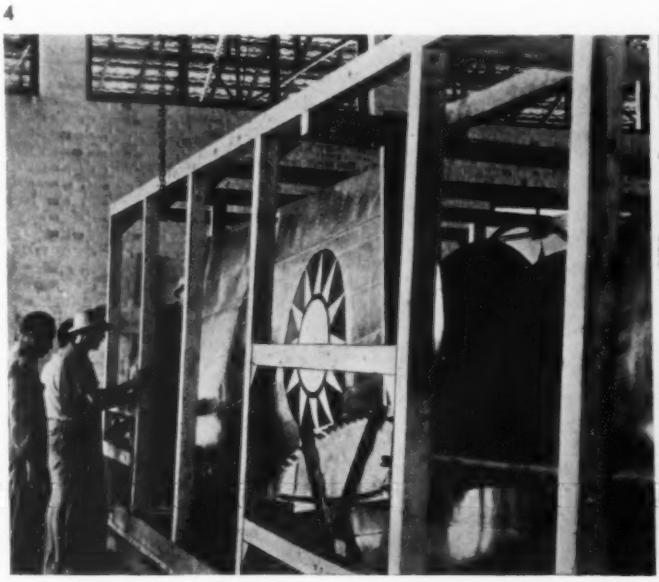


***2**—Box containing parts for 2 complete Carrier Unit Heaters ready for sealing. Framing and new cleat across top of box are of $1^{7}/_{16}$ in. lumber. Panels between end sections hold small packages firmly against bottom. Fans are bolted in place.* **3**—*Greaseproof paper wraps controls, motor and heater parts. Edges of paper around controls and motor are wax-sealed.* **4**—*Curtiss-Wright P-40 fighter being readied for shipment in a custom-built crate.* **5**—*This is the thousandth car of airplane crates being shipped to Curtiss-Wright.*

4



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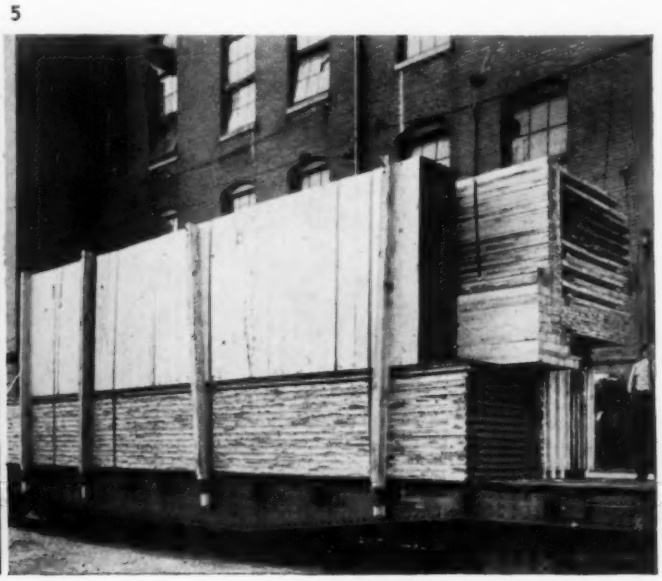


Ansco Film
(FORMERLY AGFA ANSCO FILM)
(FORMERLY AGFA ANSCO FILM)
Here are some of the places where it's going and what it's doing
Keep Your Eye on Ansco — First with the Finest

1

DISPLAY

1 Here's a card only 16½ in. high by 12 in. wide—but it does a double-barrelled merchandising job for the retailer of Ansco Films. The dramatic, official U. S. Navy photographs tell the story of the part films are playing in the winning of the war. In addition, the design of the card is intended to lighten the work of the man behind the counter. A flip of the top flap and the display answers the oft-asked question, "Have you any film today?" This extra flap which shows on the photograph, slightly raised, and reads "Ansco Film" when turned down, can be turned back over the top of the display. The message underneath reads, "We are temporarily out of Ansco Film." Ergo two jobs done by one display piece. Display, U. S. Printing & Lithograph Co., Cincinnati, Ohio.

2 Seagram's is continuing its campaign which ties V. O. in with the finer things of life. Newest in this series of promotion pieces is a set of three-dimensional, framed pictures reproduced from original art work commissioned by the company. These pictures carry the message "Men who plan beyond tomorrow." They picture the "helicopter" world of tomorrow—that beautiful postwar world for which everybody is waiting. The company name appears only on the small superimposed plaque on the bottom of the frame. The reproductions are suggested for use both as part of interior decoration and for windows. The company feels that these displays are in keeping with the decorations of the modern bar or club. Display, Consolidated Lithographing Corp., Brooklyn, N. Y.

2

GALLERY

3 "Good taste from the top of her head to the glass of beer in her hand" is the keynote of the new Ballentine's "Spring Note" display. It is easel mounted for easy erection and can be used equally effectively inside or outside of a store. It can be hung on a wall, stood on a counter or incorporated in a window display. In fact it serves for Ballentine's bar trade as well as their retail outlets. Lithographed from a photograph, the display has spring appeal which is heightened by the choice of traditionally seasonal colors—pale green, violet and white. The brewery pronounces it a most successful promotional piece. Display, Einson-Freeman Co., Inc., Long Island City, N. Y.

4 A counter display which features the self-help idea is welcomed by retailers in these days of employe shortages. This counter cut out, made for Rogers Imports, Inc., "Tobaqua Humidity Controller," has a specially constructed paperboard tube fastened behind the slot which holds the 24 disc-like tobacco humidifiers. An easel holds the display erect on the counter. Since the product is meant for use in a tobacco pouch the display encourages on-the-spot selling. When the customer buys his tobacco, takes out his pouch to fill it the cut-out reminds him of his need for the humidifier. He helps himself, pays his dime and another painless sale is made. Display, National Lithograph Window Advertising Co., New York.

5 "Ready to start selling as soon as it's lifted from the box," is the way Johnson & Johnson describe their new counter display for Steri-Pads. It is 23 in. high, $12^{3}/_{8}$ in. wide and $15^{1}/_{4}$ in. deep—large enough to attract attention but not large enough to take up too much valuable counter space. It is designed to hold an ample supply of stock. The druggist can keep fill-ins handy and never have an empty spot in his display. Novel price indicators hook onto the side, as shown in the illustration, to separate the various sizes. Although the product is not new the company expects the display to do a big selling job. Display, Sweeney Lithograph Co., Inc., New York.

6 In order to conserve paper, Abbott Laboratories have issued this window display which is, in reality, two distinctly different pieces in one. Less than a minute is required to convert the display on the left from an advertisement of the company's "Vita-Kaps Improved" to the one on the right promoting the pharmacist's services to the community and honoring the medical profession. Display, Magill-Weinsheimer Co., Chicago.

3

4

5

6

ROVING HEAT SEALER FOR MOTOR WRAPS

1

One-ton packages of machinery are wrapped up like a pound of beans or dried fruit at D. W. Onan & Sons, Minneapolis. The product is a big electrically devised motor unit that goes to the war fronts to operate cooling, heating, lighting and communication systems on, above and below the ground. The packaging method is basically Method II.

When this one-time tool-making factory swung over to motors, generators and voltage adapters in a pre-Pearl Harbor world, it was natural to figure delivery on the same basis with refrigerators and automobiles; that is, f.o.b. factory. Preparing metal parts for shipment meant chiefly a matter of greasing and prompt delivery. But Pearl Harbor brought new requirements.

First, it was necessary to preserve metal products against corrosion. Second, it was necessary to protect other elements from the corrosion-preventive grease: resistance coils, fragile threads that must function dry; metal compounds with a peculiar affinity for vapor that quickly impairs their power to amplify and discharge an electric current. Could the units be dismantled and electrical parts boxed separately for assembling on the field? Not under war conditions. Basic requirements of the Army and Navy were for immediate operation of the units on arrival, without the need of engineers to set them up or the possibility of missing gadgets.

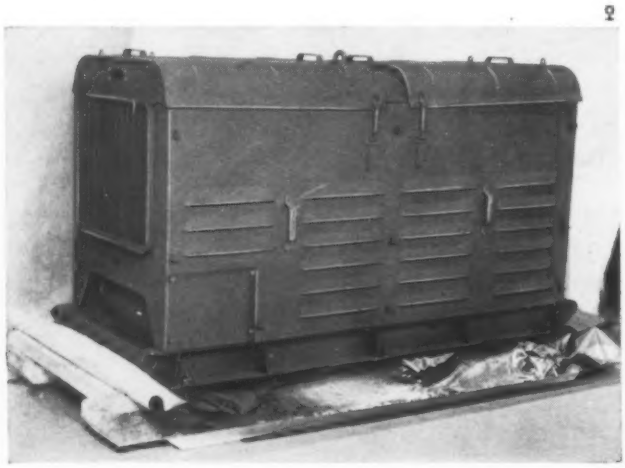
Coatings of all kinds, dipping, spraying, insulation, left the chief difficulty unanswered: sealing off high temperature units from a circulation of air tended to destroy them. Individual sealing at various points would not work. And what could be done with an entire instrument panel? Besides, when an invasion barge needs "juice" for life-and-death communications in an emergency, a cover must be whisked off, wires connected, dials and switches turned, and power developed—all in a few minutes. These units were ordered for Signal Corps work, for radar, as well as for laundries; for moving gun turrets as well as for food preparation.

The solution was to wrap the whole machine so simply that the wrapping could be torn off in one ripping motion! In the survey that followed, the best wrapping appeared to be pliofilm which, however, was tied up, but it pointed the way to a six-ply sheet of scrim cloth, water-proof adhesive, a dense kraft, an asphaltic compound, lead foil, and an outside film which under proper heat fuses or welds, if wrappings could be prefabricated to such large sheets and off shapes. A sheet was found and the Onan engineers went to work on it. They wound up by employing rotary heat sealers, made originally to crimp and hold together opposite edges of small waxed bags, such as coffee bags or mailing envelopes.

The transition of the heat sealers in the Onan factory consisted of doing away with their upright standards, laying the

1—One-ton electricity-generating plant placed on wood box cover overlaid with a six-ply laminated sheet—film inside. **2**—*Unit closed with sheet extending for heat-sealer to engage.* **3**—*Kraft inside cover over unit.*

2



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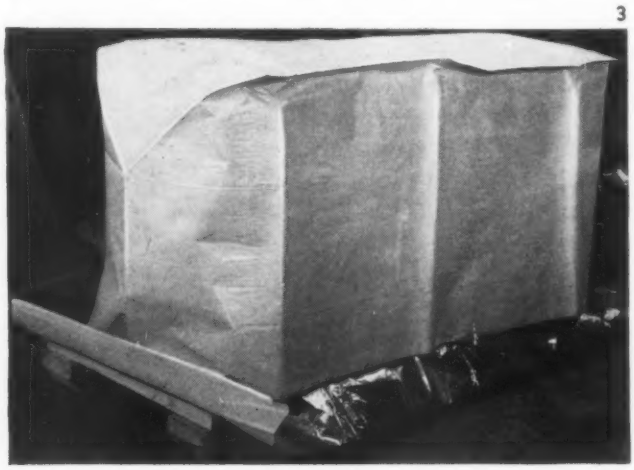

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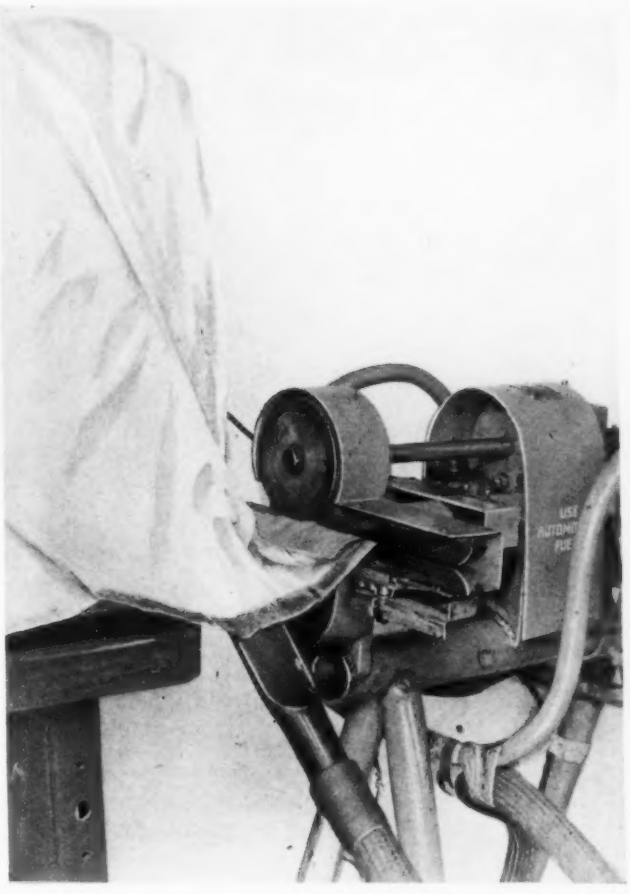

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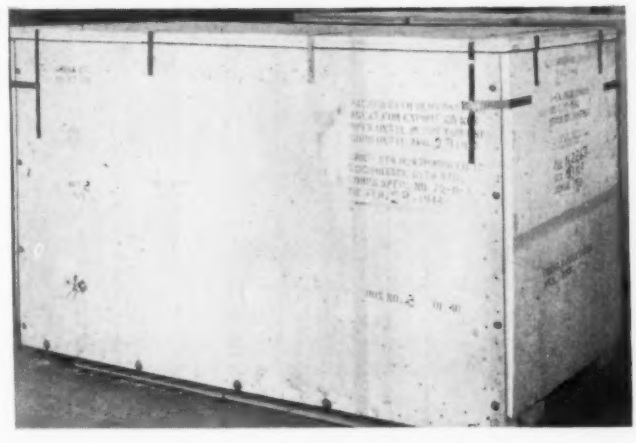

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4—Prefabricated wrapper edges being held together to be heat sealed. Sealer, remounted on side, grips edges and pulls itself along, heating, crimping, sealing. **5**—*Close-up of sealer. Opposing brass bars form channel through which wrapper edges pass to rollers. Coils in bars and rollers are at 350 deg. F. Vacuum cleaner nozzle draws air from package.* **6**—*Heat-sealed edges folded up, ready for boxing.* **7**—*Boxed export unit resting on rubber-insulated asphalt roofing strips fitted over bolts in the bottom. No contact is made on any other part of the box.*

sealers—roller jaws and motors—on their sides and mounting on dollies which could be pushed right up to the laminated sheet-covered export unit. The sealer then starts crimping all around the exposed edges of the wrapper. Instead of being a stationary thing bolted to the floor, the heat sealer became mobile and was pushed along all four sides of the big package standing on a platform. Thus, and thus only could the heating rollers get at the huge package, squeeze the flap edges between knurled surfaces and fuse them. This meant that the motor of the heat sealer was riding "on its ear"—a sleeve motor at that—and was connected with the feed jaws by a belt.

Following the sequence of pictures marked 1 to 5, first, the export unit is hung with many bags of silica gel. The electric generating plant, complete and ready for instant operation on some steaming Pacific war front or in a blizzard-swept Alaskan outpost, stands on a laminated sheet, which has been laid on the wooden lid or cover of the shipping box.

Picture 2 shows the export plant with its cover in place and the base sheet extending just beyond the edge of the platform. Picture 3 has added a moistureproof kraft bag which goes inside the wrapping. Over this, in picture 4, a prefabricated tent of the laminated sheeting has been pulled, and the rotary heat sealer has clamped the edges in its knurled jaws which are heated to about 350 deg. F., and is pulling itself along the material at the speed set thermostatically. Picture 5 introduces a made-over vacuum-cleaner with its sucking mouth extracting air from the package while the heat sealer welds the tent-like wrapper to its base. Picture 6 shows the sealed edges folded up ready for the box to be lowered over it and the last picture shows the placing of the shipping box down on the cover to which it is bolted with asphalt roofing strips or gaskets, topped by (*Continued on page 150*)

ARTHUR S. ALLEN

1867-1944

A grand old man of packaging is gone. Through the death of Arthur S. Allen on Easter Sunday, American industry lost an outstanding pioneer in package design and one of the leading experts in the use of color in the graphic arts.

Mr. Allen was one of MODERN PACKAGING'S oldest friends. He designed the format for our first cover which appeared on Vol. I, No. 1, September 1927. This format, shown in the illustration on this page, was used on the cover of every issue for the first four years of our existence.

A list of the thousands of concerns Mr. Allen advised in the use of color combinations for packages and for which he designed box covers and cartons reads like a directory of manufacturing.

Mr. Allen designed first Modern Packaging cover.

Mr. Allen, who died at his home in New York City, April 9, was 77 years old. He was born in Walpole, Mass., and as a boy learned the printer's trade. Working part-time, he put himself through Harvard. After arriving in New York he was engaged for many years as general sales manager for the Phillip Ruxton Printing Co., which later became a part of International Printing Ink Co.

It was while with this firm that he was called into consultation by the Lifebuoy Soap Co. As a result of this consultation he designed his first commercial package in 1909.

Lifebuoy officials told Mr. Allen that their soap wrapper, depicting an old sailor with long fuzzy whiskers, had misled some customers into the belief that their product would grow hair. Mr. Allen was commissioned to turn out a package that would be distinctive, using red and yellow as the principal colors. The wrapper was successful and sales went up. Mr. Allen's success grew with the success of Lifebuoy and soon he was receiving requests from many concerns for package designs.

In 1926, when he was 59 years old, Mr. Allen decided to use his knowledge of color engineering and package design to set up his own business. For eighteen years, his office at 527 Fifth avenue has been one of the color centers of the country. In Mr. Allen, the Munsell system had one of its most ardent and able supporters.

Among the last big jobs of the colorist was a complete redesign of packages for Lederle Laboratories, Inc., and to the time of his death Mr. Allen was active in postwar package planning.

He lived to see the recognition in scientific circles of the color system that meant so much to him. He leaves an indelible impression on the art of commercial and industrial package design.

BEAUTIFUL WOMEN:

OLD STYLE

The beauty of the early 19th century was a lush Grecian type with a tiny waist achieved by means no man could ever fathom. And beauty then was not in the reach of everyone. Only the rich could afford the expensive creams and emollients necessary to achieve a beautiful complexion.

Today's women, rich and poor alike, use the same cosmetics and from similar packages. Modern advertising and marketing have broken down the old taboos around cosmetics and modern package making, as practised by Burt, helps put powders and creams within the range of every pocketbook.

The old powderbox shown on this page may give some idea of the road packaging has travelled in the past decades. Design changes and increased production efficiency have made modern containers more beautiful and less expensive.

Burt automatic production has played a large part in supplying today's market with the containers it needs. Rounds, squares, ovals, oblongs—all are made automatically and at high speed on special Burt equipment. Look into this modern packaging service now for your postwar requirements.

F. N. BURT COMPANY, INC.

500-540 SENECA STREET, BUFFALO, N. Y.

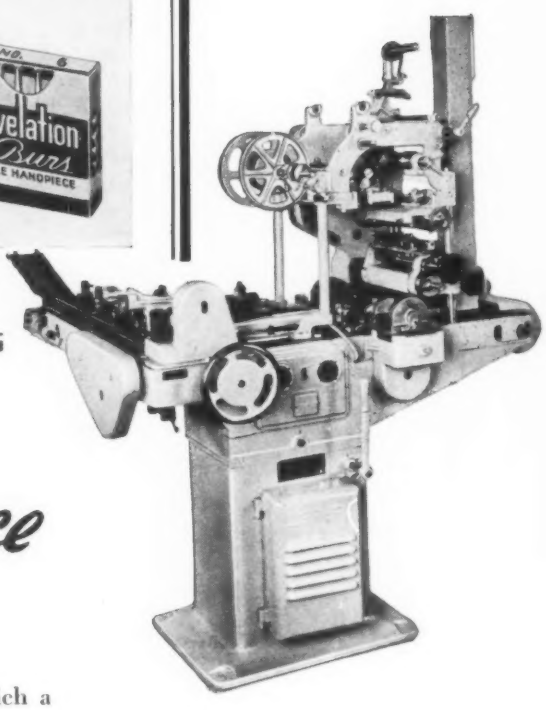
New York City - Kansas City - St. Louis
Atlanta - Chicago - Los Angeles - Boston
Cleveland - Cincinnati - Memphis - New Orleans - Minneapolis

SAN FRANCISCO: 220 Bush Street Yukon-0367

NEWARK, N. J.:
915 Military Park Bldg.—Telephone Market 3-0788

CANADIAN DIVISION:
Dominion Paper Box Company, Ltd.
468-483 King Street, West, Toronto 2, Canada

S. S. WHITE DENTAL BURS



Packaged for the utmost convenience of the user

Packaging that contributes to the convenience with which a product can be used is a mighty important builder of good will.

The S. S. White Dental Manufacturing Company's dental-bur packages are a fine example. Set in a special plastic holder which they produce, these burs may be placed upright on the dentist's instrument case. A special carton, with a cut-out that reveals the contents, fits snugly over the burs and holder. And to provide protection against contamination, the carton is enclosed in a firmly heat-sealed wrap by our Model CM-2—the ideal machine for wrapping small-size packages. Both sizes illustrated are readily accommodated, since the CM-2 can be easily adjusted for a different size.

The CM-2 is but one of a large family of our machines now wrapping millions of packages daily for the armed forces as well as for civilian needs. From this extremely versatile group, you will have no difficulty in securing the right machine for your wartime and post-war wrapping needs.

Put your problem up to our nearest office

PACKAGE MACHINERY COMPANY

Springfield 7, Massachusetts

NEW YORK CHICAGO CLEVELAND LOS ANGELES TORONTO

Flexibility

of the CM-2 is illustrated by the fact that it can also wrap a package as large as the standard cough drop package.

PACKAGE MACHINERY COMPANY

Over a Quarter Billion Packages per day are wrapped on our Machines

NORELAC

—*a new thermoplastic polymer for packaging*

*by J. C. Cowan, A. W. Schwab and L. B. Falkenburg**

Investigations at the Northern Regional Research Laboratory on rubber-like products from soybean and linseed oils yielded a large number of polymeric materials which were tested as possible replacements for natural rubber. Preliminary investigations indicated that some of the polymers were thermoplastic and that they had excellent promise for uses requiring this property. The critical need for moistureproof packaging materials to satisfy military requirements led to a more thorough examination of these thermoplastic polymers. The immediate problem was to determine their possible utilization as coating materials for cellophane as well as for glassine, sulfite and kraft papers.

Early in this work it became evident that two of the thermoplastics were superior to other resins which we had prepared. These were the ethylene diamine and hexamethylene diamine polyamides of polymeric fat acids (2). Although the hexamethylene diamine polymer had certain advantages, the relative availability of ethylene diamine favored the investigation of the ethylene diamine polymer for commercial utilization.

For convenience, we named this ethylene diamine polyamide "Norelac"[1] (see Fig. 1). A detailed description of its preparation from polymeric fat acids is given in another paper (2), and the polymer used in the present investigation was prepared in a similar manner. The production of Norelac on a semi-commercial scale has been accomplished and two pictures of the plant are shown in Figs. 7 and 8.[2] As previously reported, the properties of Norelac can be varied depending on the extent of the condensation, the purity and the source of the polymeric fat acids, and the ratio of the reactants used (1, 2). The Norelac described in the present paper is a representative sample prepared from polymerized soybean fat acids.

Possible utilization of Norelac

The utilization of Norelac by the packaging industry would require its large-scale application to paper webs, films, foils, et cetera. Present indications are that these operations should offer little difficulty. As Norelac is thermoplastic, its application from a hot melt appears feasible although this has not been thoroughly investigated in this laboratory. The application from solution offers few obstacles. Solutions of high solids content may be readily prepared using inexpensive solvents which have a wide range of evaporation rates, such as isopropyl and butyl alcohols, petroleum or aromatic hydrocarbons (2). Since Norelac possesses good solvent release, removal of solvent from the films when cast on paper, et cetera, should be easy to accomplish with existing equipment. By proper adjustment of solvent ratios and temperature, either tunnel or festoon driers should be adequate. In addition, the high solids content of Norelac solutions and the rapidity of set of Norelac films should minimize penetration into paper.

The compatibility of Norelac with resins, waxes and plasticizers facilitates the formulation of various compositions which should be useful in dipping operations for coating packages. The cheese package, shown in Fig. 2, was covered with a Norelac composition containing wax, resin and a plas-

Norelac is a new material in the packaging world. It is a synthetic lacquer, not to be confused with Norepol (synthetic rubber) or other agricultural derivatives developed by the same research station. As yet not fully tested on a commercial scale, Norelac shows considerable promise as a coating for papers, films and foils; as a heat-sealing and laminating agent and as a dip-coating. Technical directors of more than a score of companies in the packaging field agreed that a factual article on Norelac should be published. Hence, MODERN PACKAGING is happy to present this first complete technical discussion of the material, written by three of the scientists who have been instrumental in its development.

General Mills, Inc., is now manufacturing Norelac on a pilot plant basis and selling experimental amounts of it at 55 cents per pound. Another pilot plant is believed about ready to come into production.

THE EDITORS

* Of the Northern Regional Research Laboratory, Peoria, Ill., one of four regional research laboratories operated by the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Dept. of Agriculture.

[1] From NOrthern REgional LACquer.

[2] The mention in this article of firm names or commercial products under proprietary names or names of their manufacturers does not constitute an endorsement by the U. S. Department of Agriculture of such firms or products.

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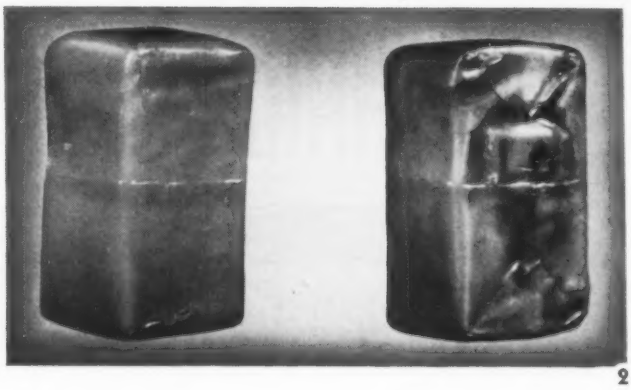

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1—*Camera study of ethylene diamine polyamide designated as "Norelac."* 2—*Packages of cheese dip-coated with a Norelac composition.* 3—*Bags of uncoated glassine with Norelac as sealing agent.* 4—*Pouches of a film of printed cellulose acetate laminated to aluminum foil with Norelac. Foil side is coated with Norelac for heat-sealing.*

TABLE I—COMPATIBILITY OF NORELAC WITH PLASTICIZERS AND WAXES

Material	*Plasticizer or wax, %*	*Source*	*Results**
Plasticizers:			
Santicizer 8	50	Monsanto Chemical Co.	C
Santicizer B-16	17	Monsanto Chemical Co.	I
Santicizer B-16	10	Monsanto Chemical Co.	B
Hercolyn	50	Hercules Powder Co.	B
Hercolyn	17	Hercules Powder Co.	C
Abalyn	50	Hercules Powder Co.	C
Tributyl phosphate	17	Monsanto Chemical Co.	I
Tributyl phosphate	10	Monsanto Chemical Co.	B
Triethyl phosphate	10	Phillips & Jacobs Co.	I
Dimerized fat acids	50	Werner G. Smith & Co.	C
Plasticizer C-24	50	Resinous Products & Chemical Co.	C
Fat acid nitriles	50	Armour & Co.	C
Nevillac (m.p. 10°)	50	Neville Co.	C
Di-*t*-amyl-cyclohexanol	50	Sharples Chemicals, Inc.	C
Staybelite #2	50	Hercules Powder Co.	C
Hydroabietyl alcohol	50	Hercules Powder Co.	C
Waxes:			
Paraffin (m.p. 56–59°)	2	J. T. Baker Chemical Co.	C
Paraffin (m.p. 56–59°)	3	J. T. Baker Chemical Co	I
Ceresin	2	Phillips & Jacobs Co.	C
Ceresin	3	Phillips & Jacobs Co.	I
Chlorinated paraffin	2	Hercules Powder Co.	C
Flexowax C	1	Glycol Products Co., Inc.	I
Wax 160 F	1	Barnsdall Co.	I
#2310 Wax	½	Wadham Co.	C
#2310 Wax	2	Wadham Co.	I

* C = Compatible, I = Incompatible, B = Borderline.

ticizer. This coating amply protects the package since it offers an excellent barrier to water, is greaseproof and retains its flexibility at low temperatures.

The importance of the heat-sealing operation in the fabrication of numerous packaging items is well known. Since Norelac has excellent adhesion to papers, films and metal foils, it may be used in the manufacture of bags, pouches and other articles. The bags illustrated in Fig. 3 were made from uncoated glassine using Norelac as the sealing agent. The adhesion of Norelac to uncoated glassine is noteworthy, since this property is possessed by few materials (3).

Norelac's excellent adhesion and its cohesive properties also make possible its use in the manufacture of a wide variety of laminates, such as glassine to glassine, sulfite paper to lead foil, cellophane to cellophane, et cetera. Laminates prepared using Norelac as the bonding agent compared favorably with the commercial samples tested in resistance to water-vapor transfer. The aluminum pouches, shown in Fig. 4, are a good example of a fabricated laminate. They were made from a sheet consisting of a film of printed cellulose acetate laminated to aluminum foil with Norelac. The foil side was coated with Norelac in order to provide the necessary heat-sealing coat.

Many products require the use of containers which are relatively impermeable to water vapor. Certain food products, especially dehydrated or frozen foods, hygroscopic chemicals, precision machine parts, et cetera, must be protected from either gain or loss of moisture while in the package. Norelac compositions may be formulated which offer an excellent barrier to water vapor, so their use in the packaging of these products may be possible. Since Norelac is unaffected by vegetable oils, it might find use as a protective coating in containers for shortenings and other products which contain oils. Further, it has been shown (2) that Norelac films possess excellent resistance to alkalies and acids which makes them serviceable as protective coatings in packages for products containing these types of corrosive agents.

In addition to having the properties mentioned, it should be noted that Norelac films are light in color, are transparent, possess good gloss and can be colored readily with a dye or pigment. Since its films dry rapidly, Norelac should make excellent spirit varnishes or lacquers for labels, magazine covers and lithograph or rotogravure stocks.

Experimental

In development research on coatings for use by the packaging industry it is necessary to know the compatibility of resins, waxes and plasticizers with, and the effects of such materials on the principle film-forming constituents. This is true because specific properties, such as moistureproofness, flexibility at low temperatures, heat-sealing characteristics and grease resistance, must be achieved in the protective coating used in packaging of many products. The following paragraphs describe how these properties were determined.

Compatibility

The compatibility of Norelac with various waxes and plasticizers was determined as follows: Solutions of Norelac and

TABLE II—WATER-VAPOR PERMEABILITY OF NORELAC COATINGS

Base stock	*Coating composition*	*Weight of coating, lbs. per ream**	*Water-vapor permeability†*
30-lb. kraft	Norelac, unmodified	8.0	6.0
30-lb. kraft	Norelac, unmodified	16.0	4.1
30-lb. kraft	Norelac + 1% paraffin	8.0	0.6
30-lb. kraft	Norelac + 2% paraffin	8.0	0.2
30-lb. kraft	Norelac + 3% paraffin	8.0	0.3
30-lb. kraft	Norelac + 4% paraffin	8.0	0.4
30-lb. kraft	Norelac + 2% Flexowax C	8.0	5.8
30-lb. kraft	Norelac + 0.5% Flexowax C	8.0	0.4
30-lb. kraft	Norelac + 2% Barnsdall wax 160	8.0	2.2
30-lb. kraft	Norelac + 0.25% Barnsdall wax 160	8.0	0.7
30-lb. kraft	Norelac + 2% Ceresin	8.0	0.6
30-lb. kraft	Norelac + 0.5% chlorinated paraffin	8.0	1.7
25-lb. M.G. sulfite	Norelac + 10% di-*t*-amyl-cyclohexanol, 10% Nevillac, 2% paraffin	6.0	0.4
30-lb. kraft	Norelac + 10% di-*t*-amyl-cyclohexanol, 10% Nevillac, 2% paraffin	6.5	0.3
30-lb. opaque glassine	Norelac + 10% di-*t*-amyl-cyclohexanol, 10% Nevillac, 2% paraffin	8.0	0.35
30-lb. transparent glassine	Norelac + 10% di-*t*-amyl-cyclohexanol, 10% Nevillac, 2% paraffin	7.0	0.4
30-lb. transparent glassine	Norelac + 10% Nevillac (10°) + 2% paraffin	9.0	0.4
30-lb. transparent glassine	Norelac + 10% Hercolyn + 2% paraffin	9.5	0.6
25-lb. M.G. sulfite	Norelac + 15% Hercolyn, 15% nitrocellulose, 2.5% paraffin	8.5	0.6
30-lb. kraft	Norelac + 15% Hercolyn, 15% nitrocellulose, 2.5% paraffin	8.5	0.7
30-lb. transparent glassine	Norelac + 15% Hercolyn, 15% nitrocellulose, 2.5% paraffin	9.0	0.4
30-lb. kraft	Norelac + 10% Hercolyn + 2% paraffin	3.0	3.7
30-lb. kraft	Norelac + 10% Hercolyn + 2% paraffin	4.0	3.2
30-lb. kraft	Norelac + 10% Hercolyn + 2% paraffin	5.5	2.0
30-lb. kraft	Norelac + 10% Hercolyn + 2% paraffin	7.0	0.9
30-lb. kraft	Norelac + 10% Hercolyn + 2% paraffin	9.0	0.4
PT cellophane 300A	Norelac + 10% Nevillac (10°), 2% paraffin	8.5	0.7
PT cellophane 300A	Norelac + 10% Nevillac (10°), 3% paraffin	8.5	0.4
PT cellophane 300A	Norelac + 10% Nevillac (10°), 4% paraffin	8.5	0.6
PT cellophane 300A	Commercial sample	..	81.5
MST cellophane 300A	Commercial sample	..	1.2

* Basis weight (24 in. by 36 in.—500).
† Water-vapor permeability gms./100 sq. in./24 hours at 100° F., 95% relative humidity.

solutions of the wax or plasticizer were mixed and the mixtures examined for clarity and solubility. The clear solutions containing different ratios of Norelac and wax or plasticizer were poured on glass plates and allowed to dry, and the films were examined for haze. The data on compatibilities are reported in Table I.

Application to papers and films for evaluation

Norelac coatings of the desired thickness were cast from solution upon 9-in. by 12-in. sheets of the base stocks using a Martinson Sheet Coater. The solutions contained 35 to 40% of Norelac in a solvent mixture consisting of equal parts (by volume) of isopropyl alcohol, n-butyl alcohol, lacquer diluent[3] and benzene. This solution was found to be suitable for the laboratory application of Norelac to all materials investigated. The coated test sheets were air-dried for 15 to 30 minutes and then baked for 1 to 2 minutes at 60 to 65 deg. C. in a Freas mechanical convection oven. This procedure insured the removal of all of the solvent.

Water vapor transmissions were determined at 100 deg. F. using a relative humidity differential of 95 to 0%. The method for this determination, developed by the authors using readily available equipment,, is described in another paper (7). In all determinations, the coated side was exposed to the high humidity and the samples were not creased.

[3] Skellysolve C., boiling range 190 to 208 deg. F.

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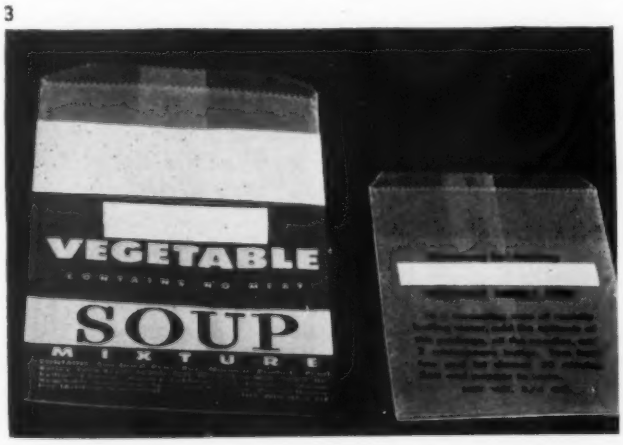

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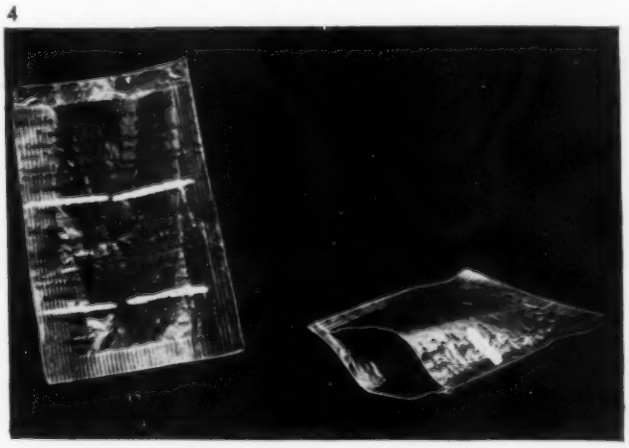

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5—*Shown above are three photomicrographs of Norelac films containing paraffin illustrating the crystal formation (Magnification 440×) No. 1 is 2% paraffin; no. 2 is 3% paraffin and no. 3 is 5% paraffin.*

The water-vapor permeability of unmodified Norelac coatings was determined first. The effects of waxes, plasticizers and resins on the moisture transfer were then investigated. The results are given in Table II. The water-vapor permeabilities of a few commercial laminates were compared with those of laminates prepared using Norelac, and the data obtained are listed in Table III.

In order to determine how waxes lower the moisture permeability, films of Norelac containing various percentages of paraffin were cast on glass slides and examined in a polarizing microscope under crossed nicols, the microscope stage being rotated through 180 deg. to determine extinction. Photomicrographs of these films are shown in Fig. 5. Additional information was obtained by measuring the contact angle of a drop of water with the film, using the horizontal-plate technique. The method used was a modification of the procedure described by Kneen and Benton (5). The values obtained are given in Table IV.

TABLE III—COMPARISON OF THE WATER-VAPOR PERMEABILITY OF COMMERCIAL AND NORELAC LAMINATES

Base Stock	*Description*	*W.V.P.**
#140 P1D Pliofilm laminated to same	Commercial laminate	0.2
#450 moistureproof cellophane laminated to same	Commercial laminate	1.2
#300 moistureproof cellophane laminated to same	Commercial laminate	1.0
25-lb. glassine laminated to same	Laminated with a Norelac, wax, plasticizer composition (6 lbs./ream) and overcoated on one side with same (6 lbs./ream)	0.7
25-lb. glassine laminated to same	Laminated with a wax-resin composition and overcoated on one side with a Norelac composition (6 lbs./ream)	0.3
25-lb. sulfite laminated to same	Laminated with a Norelac composition (14 lbs./ream) and one side overcoated with the Norelac composition (6 lbs./ream)	1.0
#300 moistureproof cellophane laminated to same	Laminated with a Norelac composition (6 lbs./ream) and overcoated on one side with the Norelac formulation (6 lbs./ream)	1.0

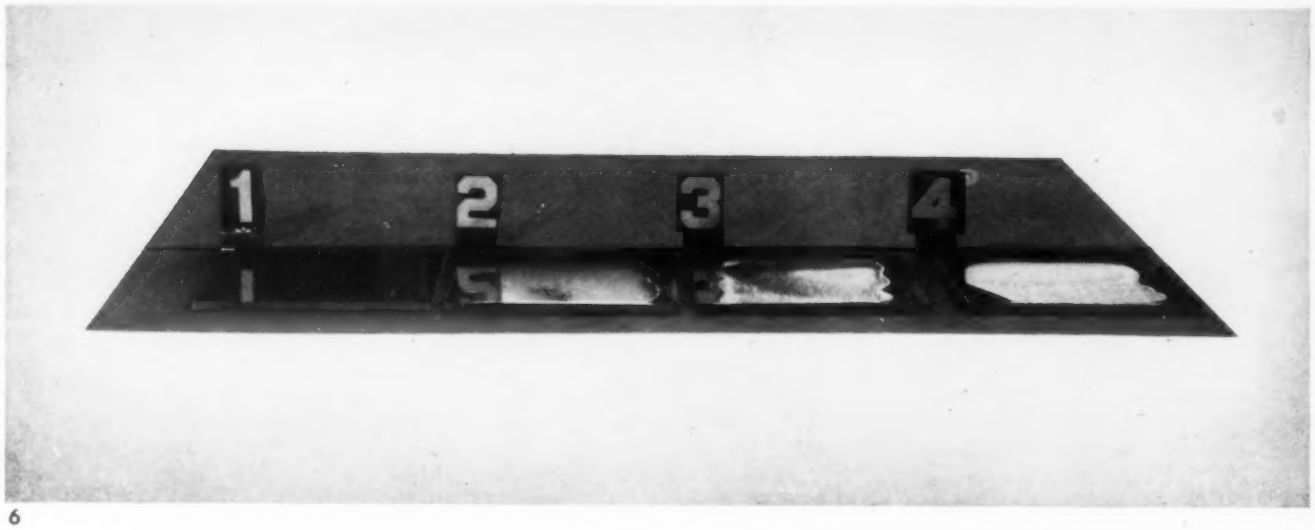
* Grams/100 sq. in./24 hours at 100° F., 95% relative humidity.

Heat-sealing and laminating tests

Heat-sealing and laminating characteristics of Norelac-coated sheets were tested by sealing with an ordinary electric iron and examining the seal. Various temperatures were investigated, but no study was made of the time and pressure factors. The strength of the bond was judged by pulling the sealed sections apart by hand. The bond was considered excellent if the base stock was torn when attempting to separate the seal. If the seal could be broken without tearing the base stock, but required considerable force, it was rated as good. When only a slight amount of force was necessary to break the bond, or if adhesion was totally lacking, the bond was called poor. Heat-sealing and laminating tests were conducted on Norelac coatings deposited on various base stocks and the results are reported in Table V.

In order to illustrate the strength of Norelac bonds, two strips of tin plate (5 in. by $^1/_2$ in.) were joined by means of an overlap seal ($^1/_2$ in. by $^1/_2$ in.) with molten Norelac. The two ends were then placed in a Scott tensile tester (Model J-1) and pulled apart. While the values obtained were not strictly reproducible, due to difficulties in preparing comparable seals, the results nevertheless showed that Norelac bonds have shearing strengths in the range of 600–1,000 lbs./sq. in.

Closely related to heat-sealing and laminating properties of various coatings is the tendency known as "blocking." Tests were made to determine at what temperatures and pressures blocking would occur. These tests were conducted by placing two pieces of Norelac-coated kraft paper (4 in. by 6 in.) between the electrically heated platens of a small, laboratory, hydraulic press and pressing them together at a definite temperature and pressure for one-half hour. The pieces were



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6—A photograph showing, in numbered sequence, Norelac films containing various amounts of paraffin. No. 1 is 2% paraffin; No. 2 is 3% paraffin; No. 3 is 4% paraffin and No. 4 contains 5% paraffin.

then removed and examined for adhesion. The results are given in Table VI.

Greaseproofness

The grease resistance of Norelac-coated paper was determined by a modification of Mellen's method (6). The tests, results of which are reported in Table VII, were conducted by sealing the coated paper to a brass ring (2 in. outer diameter) with wax or resin. The assembly was then placed on a filter paper, the ring partially filled with either turpentine or corn oil colored with a dye (Sudan III). The time required for the liquid to penetrate through the coated paper to the filter paper was then noted.

Flexibility

The flexibility of both plasticized and non-plasticized coatings of Norelac was evaluated by placing a strip of the coated paper (2 in. by 6 in.) in the freezing chamber of an electric refrigerator for 24 hours at the desired temperature, and then bending double six times over a No. 22-gage wire, with the coated side of the paper out. The wire was suspended between two wooden prongs attached to a frame which was kept in the freezing chamber. The flexed paper was examined visually for any cracks which might have developed and further tested by placing a few cubic centimeters of a colored vegetable oil on the flexed portion and determining whether any penetration through the coating occurred within 30 minutes. Penetration by the oil showed that the coating was not flexible since it had been previously demonstrated that Norelac films, free from flaws, are impervious to oil. A summary of the results obtained is given in Table VIII.

Discussion of results

It was previously reported (2) that Norelac is compatible with a wide variety of natural and synthetic resins, such as phenolics, ester gum, rosin, manila and nitrocellulose. The results given in Table I show that Norelac is also compatible with a number of plasticizers and with small amounts of several waxes.

In general, unmodified Norelac-coated papers or films exhibit only fair resistance to the transmission of water vapor. This permeability varies to some degree with the molecular weight of the polyamide. Further, the results given in Table II demonstrate that the water-vapor permeability of Norelac coatings is reduced 10 to 20 times by the addition of small amounts of wax, preferably paraffin.

Studies on the contact angle of water with Norelac films indicate that the reduction in water vapor transmission is due to the formation of a thin layer of paraffin on the surface of the Norelac. The existence of this layer is shown by the uniformity of the contact angle obtained on films prepared with varying amounts of paraffin with that obtained on a film of paraffin alone.

The optimum concentration of paraffin necessary to obtain minimum water-vapor transmission in Norelac coatings containing no other ingredient is 2 to 3%. As shown in Fig. 6 films containing 3% or more of paraffin are hazy. Examination under a polarizing microscope demonstrated that this haziness is caused by the formation of crystals (see Fig. 5). Therefore, it appears that this optimum concentration of wax corresponds to the maximum amount that can be tolerated without undue crystal formation. This percentage will vary, depending on the type of Norelac and kind of wax used. Our tests show that 6 to 10 lbs. per ream of Norelac coating is necessary to obtain maximum moistureproofness. Lower weights per ream might be satisfactory for moistureproofing if uniform coatings could be obtained, but we were unable to achieve this condition when applying coatings of 3 to 5 lbs. per ream.

Since Norelac is a thermoplastic polymer, it would be expected to be a good heat-sealing and laminating agent if both the cohesion of Norelac with itself and the adhesion of Norelac to the base stock had sufficient strength to insure a strong

TABLE IV.—CONTACT ANGLES OF WATER WITH NORELAC FILMS

Film composition	*Contact angle, degrees*
Unmodified Norelac	87
Paraffin film	108–110
Norelac + ½ to 5% paraffin	108–109
Norelac + 1% paraffin + 10% Nevillac (10°)	108
Norelac + 4% paraffin + 10% Nevillac (10°)	108

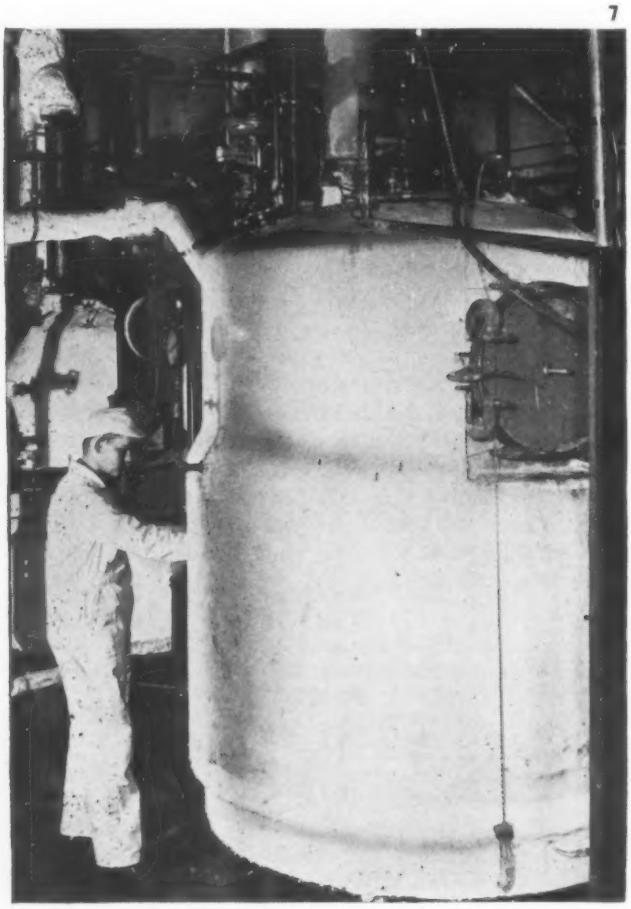
TABLE V—HEAT-SEALING AND LAMINATING CHARACTERISTICS OF NORELAC

Base stock	*Norelac coating*	*Heat-sealing tests*		*Lamination tests*		
		Temp., ° C.	*Adhesion*	*Base stock to*	*Temp., ° C.*	*Adhesion*
30-lb. kraft	Unmodified	110	Excellent	...	...	...
30-lb. kraft	2% paraffin	110	Excellent	...	...	...
25-lb. M.G. sulfite	2% paraffin	110	Excellent	...	...	...
30-lb. transparent glassine	2% paraffin	110	Excellent	30-lb. transparent glassine	120	Excellent
25-lb. M.G. sulfite	10% Nevillac (10°) + 2% paraffin	110	Excellent	25-lb. M.G. sulfite	115	Excellent
Aluminum foil (0.0008 in.)	Unmodified	120	Good	30-lb. kraft	120	Excellent
Aluminum foil (0.0008 in.)	10% Nevillac (10°) + 2% paraffin	120	Excellent	Aluminum foil	120	Very good
PT cellophane 300A	Unmodified	125	Poor	PT cellophane 300A	125	Poor
PT cellophane 300A	10% Nevillac (10°) + 2% paraffin	145	Good	PT cellophane 300A	135	Good
PT cellophane 300A	10% Nevillac (10°) + 2% paraffin	...	...	30-lb. glassine	135	Good
Lead foil	Unmodified	130	Excellent	30-lb. kraft	130	Excellent

bond. It was found that Norelac possesses sufficient cohesion and outstanding adhesion to various types of paper, such as sulfite, kraft, and glassine. The strength of the bond is much greater than the strength of the paper, as indicated by the fact that the seals could not be broken without tearing the paper. In the case of other base stocks, such as metal foils or cellophane, various Norelacs differ in their degree of adhesion. The poor adhesion of some Norelac preparations can be overcome readily by the addition of resins or plasticizers.

7—Polyamide kettle and ester interchange kettle (background) at plant for Norelac operated by General Mills, Inc.

7



There is an optimum temperature and pressure range for all heat-sealing or laminating agents. In addition, there is a definite time factor which depends on the temperature and pressure and on the rate of heat transfer from the sealing equipment through the base stock to the coating (4). Most Norelac compositions can be readily heat-sealed in a very short time, with slight pressure, in the temperature range of 100 to 130 deg. C. These conditions are especially useful because they allow for the formation of a strong bond or seal at a temperature low enough to insure freedom from heat damage to the base stock.

The results of grease resistance tests show that Norelac films possess excellent resistance to vegetable oils and fair resistance to turpentine. Norelac coatings are impervious to vegetable oils unless small cracks or pinholes are present in the film. On the other hand, turpentine attacks Norelac films slowly, requiring about 20 to 30 hours of continuous contact to cause film failure.

Coatings for packaging materials should be flexible and non-blocking over a wide range of temperatures in order to insure proper protection under varying and changing climatic conditions.

Unmodified Norelac coatings are generally flexible at temperatures down to 5 to 10 deg. C., depending on the preparation of the Norelac and on the film thickness. If 10 to 15% of a plasticizer is present, the flexibility range is extended to

TABLE VI—BLOCKING CHARACTERISTICS OF NORELAC COATINGS (BASE STOCK—30-LB. KRAFT)

Film Coating	*Temp., ° F.*	*Pressure, lbs./sq. in.*	*Adhesion*
Norelac, unmodified	125	4,000	Slight adhesion, not objectionable
Norelac, unmodified	135	1,000	Objectionable blocking
Norelac, + 2% paraffin	135	1,000	Slight adhesion, not objectionable
Norelac, unmodified	160	5	Slight adhesion, not objectionable
Norelac, + 2% paraffin	160	5	Very slight adhesion, not objectionable
Norelac, + 10% Nevillac (10°)	160	5	Blocking
Norelac, + 2% paraffin + 10% Nevillac (10°)	160	5	Slight adhesion, not objectionable

TABLE VII—GREASEPROOFING STUDIES

Base stock	*Norelac coating*	*Condition of film**	*Reagent*	*Coating weight, lbs./ream*	*Transudation time*
30-lb. kraft	10% Hercolyn, 2% paraffin	Uncreased	Corn oil	5.5	3 weeks
30-lb. kraft	10% Hercolyn, 2% paraffin	Creased	Corn oil	5.5	6 hours
30-lb. kraft	10% Hercolyn, 2% paraffin	Creased	Corn oil	12	6 weeks +
30-lb. kraft	Unmodified	Uncreased	Corn oil	5.0	3 days
25-lb. sulfite	10% Nevillac (10°), 2% paraffin	Creased	Corn oil	10	22 hours
30-lb. kraft	Unmodified	Uncreased	Turpentine	5.0	29 hours
30-lb. kraft	Unmodified	Creased	Turpentine	5.0	40 minutes
30-lb. kraft	10% Hercolyn, 2% paraffin	Creased	Turpentine	5.5	1 hour
30-lb. glassine	10% Nevillac (10°), 2% paraffin	Creased	Corn oil	8.0	6 weeks +
30-lb. glassine	10% Nevillac (10°), 2% paraffin	Uncreased	Turpentine	8.5	31 hours +
30-lb. glassine	10% Nevillac (10°), 2% paraffin	Creased	Turpentine	8.5	29 hours
25-lb. sulfite	2% Paraffin	Uncreased	Corn oil	7.0	6 weeks +
25-lb. sulfite	2% Paraffin	Uncreased	Turpentine	7.0	27 hours
25-lb. sulfite	2% Paraffin	Creased	Corn oil	7.0	4 days

* Creased samples had 10 creases, 5 parallel to grain and 5 perpendicular to grain.

temperatures as low as −20 to −25 deg. C. with coatings of 5 to 10 lbs. per ream. The amount of plasticizer which may be added is limited, because Norelac films have a relatively low tensile strength. If more than 15% plasticizer is employed, the coatings are too soft at ordinary temperatures and will readily block. The data in Table VI show that it is possible to prepare Norelac coatings which are non-blocking, even at temperatures and pressures not ordinarily encountered. The addition of soft resins or plasticizers tends to make Norelac coatings more susceptible to blocking, but the addition of a wax in small amounts aids in overcoming this tendency.

TABLE VIII—FLEXIBILITY OF NORELAC COATINGS (BASE STOCK —30-LB. KRAFT)

Film composition	*Coating weight, lbs./ream*	*Temp., ° C.*	*Flexibility*
Unplasticized	5.0	10	Flexible
Unplasticized	5.0	5	Brittle
Unplasticized	10.0	10	Brittle
10% plasticizer*	5.0	−20	Flexible
15% plasticizer	5.0	−25	Flexible
10% plasticizer	11.0	−15	Flexible
15% plasticizer	10.0	−20	Flexible
10% plasticizer	15.0	−10	Flexible
15% plasticizer	16.5	−15	Flexible

* Abalyn, Hercolyn, Santicizer-8, Stabelite-2, and di-*t*-amylcyclohexanol gave practically identical results.

Summary

A discussion of Norelac, the polyamide obtained by reacting polymeric fat acids or esters with ethylene diamine, has been presented along with experimental data illustrating its excellent heat-sealing and laminating properties, flexibility, and moisture- and greaseproofness. Various uses for this new material have been suggested.

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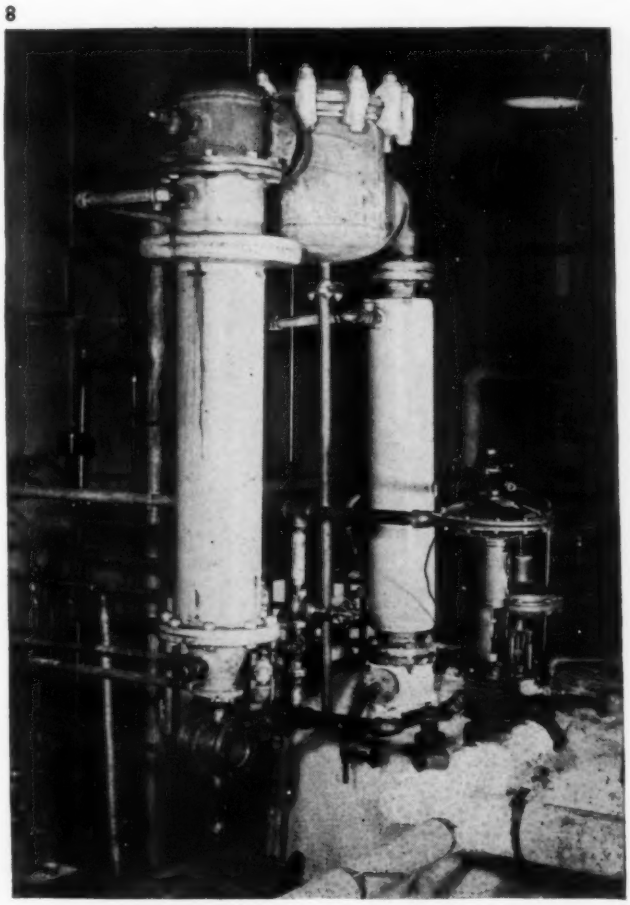
Acknowledgments

The authors are indebted to Mr. Leon Gold and Dr. Samuel Zweig of the Milprint Co., Milwaukee, Wis., for their interest and helpful suggestions given during the course of this investigation and for supplying the fabricated articles shown in Figs. 2, 3 and 4, and to Miss Betty J. Roberts of this laboratory for aid in carrying out much of the experimental work. The pictures of the pilot plant were furnished by General Mills, Inc., Minneapolis, Minn.

8—*Top view of distillation equipment for purification of methyl esters of fat acids at General Mills, Inc. plant.*

8



POLYSTYRENE

*by G. W. Whitehead and M. A. Brown, Jr.**

EDITOR'S NOTE: *Because of the very important part which monomeric styrene, the chemical antecedent of polystyrene, has played during the war in synthetic rubber production, polystyrene is presently available only for the most essential military applications. But for the same reason, polystyrene will be one of the most abundant and least expensive thermoplastics after the war. This is a discussion of molded polystyrene and its uses in packaging.*

In 1938, a polystyrene acid bottle closure introduced this then-new plastic molding compound to the packaging industry. In that application, advantage was taken of the high chemical resistance characteristics of the material, in particular its resistance to such strong non-oxidizing acids as sulfuric, hydrochloric and hydrofluoric. Since that first utilitarian use, a stream of packaging applications, utilizing the light weight, dimensional stability, color and adaptability to form design of polystyrene have flowed from molding machines.

The importance of sales appeal in a packaging material needs no elaboration. A prime function of any package, sometimes overlooked under the pressure of war production, is the creation of sales-worthy appearance. Color, finish, shape and design details each are a consideration to the package designer. In its brief pre-war career, the design advantages of polystyrene in each of these categories enabled its rapid growth for molded containers.

The color characteristics of polystyrene are of basic interest in packaging. Basically a clear, colorless transparent, the material is formulated in translucent, transparent and opaque shades and tints ranging from lustrous jet to delicate pastels. As in other plastics, its color is inherent; not a surface effect. Thus it insures fastness, durability and richness of color. At a premium in materials cost, a package designer can develop his own particular tint and reproduce it faithfully from batch to batch.

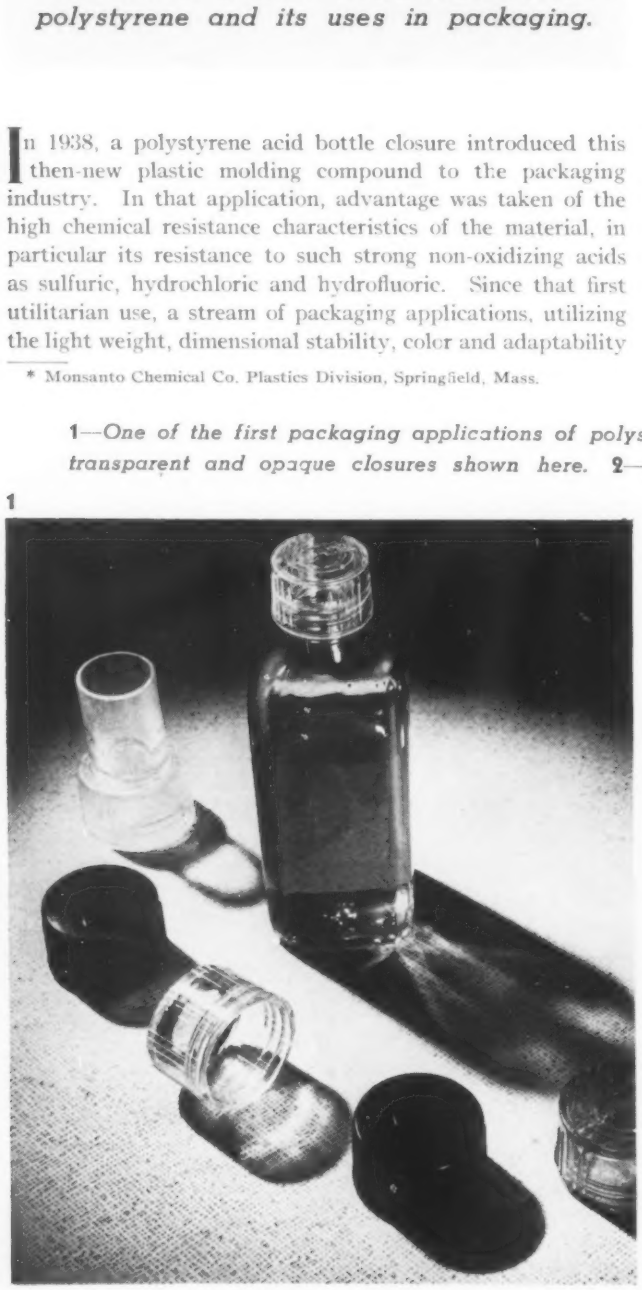
Polystyrene package components are usually injection molded in machined steel dies. Wide flexibility in form and shape with precise reproduction from one molding to another is thus provided. Intricate details can be incorporated in the mold; lettering is sharp and well defined and minute surface effects are obtained readily. Each molded unit is a faithful reproduction of the form, design and finish built into the steel mold.

The high dimensional stability of polystyrene and the resultant ability to maintain close dimension arises from the

* Monsanto Chemical Co. Plastics Division, Springfield, Mass.

1—One of the first packaging applications of polystyrene was as a closure for acid bottles. Typical transparent and opaque closures shown here. 2*—Pre-war uses of polystyrene for cosmetic packages.*

1



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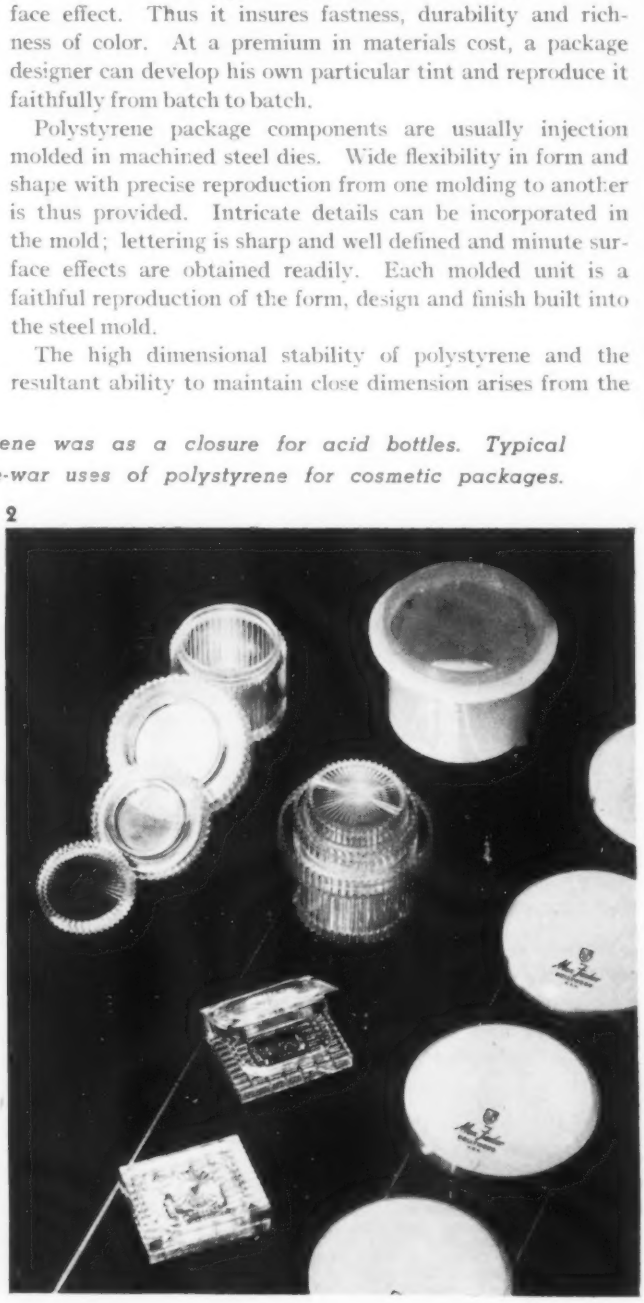
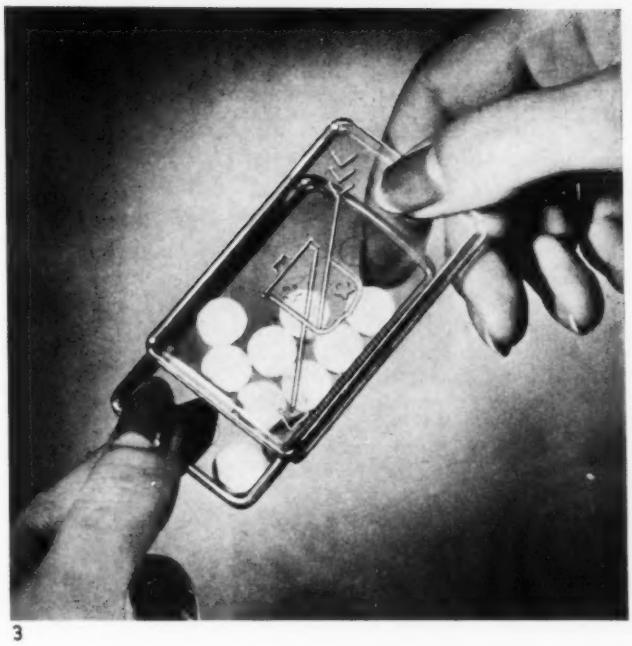


extremely low moisture and water absorption of the plastic, the absence of plasticizer and relatively high heat distortion point. The low water absorption (0.00% to 0.05%—24 hrs. immersion) provides freedom from warpage, from absorption of water or moisture in shipping or use. Plasticizers, which in some plastics tend to leach out of the material and cause shrinkage, are not used in formulating polystyrene molding compounds. The heat distortion point of the material (168 deg. to 176 deg. F.) is higher than that of most other thermoplastics suitable for injection molding. Further development work is under way on styrene derivatives with heat distortion point 40 deg. to 50 deg. F. higher.

TABLE I—SUMMARY OF PHYSICAL PROPERTIES OF POLYSTYRENE*

Molding quality	Excellent
Compression molding temperature	275–350° F.
Compression molding pressure	1000–5000 lbs./sq. in.
Injection molding temperature	300–500° F.
Injection molding pressure	10,000 and up lbs./sq. in.
Compression ratio	2.0–2.3
Mold shrinkage	Compression 0.002–0.005 in. per in. Injection 0.0002–0.008 in. per in.
Specific gravity	1.054–1.070
Specific volume	26.3–25.9 cubic in./lb.
Refractive index	1.59
Tensile strength	5000–9000 lbs./sq. in.
Elongation, %	2–5
Modulus of elasticity, in tension	$1.7–2.6 \times 10^5$ lbs./sq. in.
Compressive strength	11,500–13,500 lbs./sq. in.
Flexural strength	14,000–19,000 lbs./sq. in.
Impact strength	0.35–0.50 ft.-lbs./in. of notch $^1/_2 \times {}^1/_2$ in. notched bar, Izod test
Brinell hardness (2.5 mm ball, 25 kg. load)	20–30
Rockwell hardness	M87–M90
Light transmission	88–90%
Thermal conductivity	1.9×10^{-4} Cal./sec./sq. cm./1° C./cm.
Specific heat	0.32 cal./° C./gram
Thermal expansion	6–8 × 10 per degree centigrade
Softening point	190–230° F.
Distortion under heat (A.S.T.M.)	170–180° F.
Tendency to cold flow	Slight
Color possibilities	Unlimited
Effect on metal inserts	None

* Monsanto Chemical Co.'s Lustron.



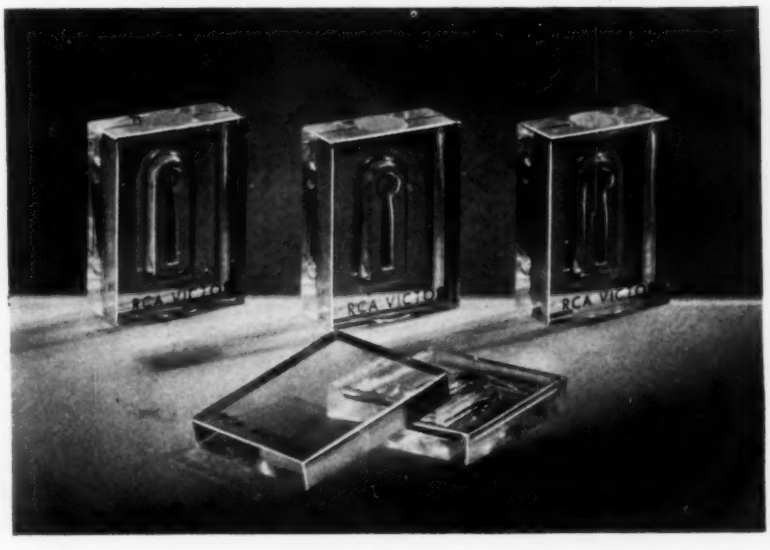
3

***3**—Transparent polystyrene was selected as the material for the one-at-a-time pillbox shown not only for its instantaneous visibility, but also because it will not contaminate the contents of this pocket- or purse-size package. Such applications of molded polystyrene will open up many interesting avenues for postwar packaging.*

Polystyrene molded packages are considerably lighter than those of alternate materials. The material itself is extremely light, with a specific gravity of approximately 1.05. In addition, the somewhat higher tensile strength of polystyrene, in comparison to such materials as glass or ceramics, enables the use of thinner wall sections, making possible further economies in over-all weight.

A considerable amount of detail work has been done on the chemical and solubility characteristics of polystyrene in contact with various products to be packaged. In general the chemical solvent resistance of polystyrene is superior to that of other thermoplastics, though it is difficult to general-

4



***4**—R. C. A.'s Long-Life phonograph needle was packaged in transparent polystyrene not only to take advantage of this material's protective and promotional possibilities but also for the magnifying properties of the plastic which allows a mold to be so designed that the container enlarges the needle's point for close inspection.*

Photo 1, courtesy Dow Chemical Co. Photo 2, Monsanto Chemical Co. Photos 3 and 4, Bakelite Corp.

TABLE II—EFFECT OF COSMETIC INGREDIENTS AND COSMETICS ON POLYSTYRENE*

This list of reagents is presented for general guidance only. Reagents that affect polystyrene in full strength often have no effect whatever in dilute solutions or when present in low percentages in a cosmetic formulation. It is recommended that samples of formulations proposed for packaging in polystyrene be submitted for definitive tests.

		At Temperature
Unaffected by	Solution of 7% chloramine T 3% stearic acid 1% boric acid 89% distilled water	38° C.
	2% sodium hydroxide	25° C.
	Saturated lime water	25° C.
	30% hydrogen peroxide	25° C.
	3% hydrogen peroxide	25° C.
	Isopropyl alcohol	25° C.
	Methyl alcohol	
	Ethyl alcohol	
	Normal butyl alcohol	25° C.
	Secondary butyl alcohol	25° C.
	Glycerine	
	Ethylene glycol	
	Lysol	25° C.
	2% Lysol in water	25° C.
	2% phenol in water	25° C.
	Hudnut face powder	50° C.
	Hudnut make-up base	50° C.
	12% Merchlor (sodium hypochlorite)	25° C.
	15% calcium hypochlorite	25° C.
	Pure vanilla	25° C.
	Vanilla flavoring	25° C.
	6% acetic acid in water	30° C.
Crazed by	Citric acid—saturated aqueous solution	25° C. and 50° C.
	Hudnut body powder	50° C.
	Pond's Rascal Red lipstick mass	40° C.
Soluble in	Oil of cedar leaf White oil of thyme Oil of lavender Oil of verbena Ylang-ylang oil Oil of bergamot Compounded oil of violet Oil of bitter almonds Ethyl acetate Butyl acetate Amyl acetate Dimethyl phthalate Diethyl phthalate Dibutyl phthalate Chloroform Turpentine	25° C.
Softened or swollen by	Calox toothpaste	50° C.
	p-Cresol	25° C.
	2% cresol in water	25° C.
	Acetone	
	Ether	
	Hudnut bath salts	50° C.
	Orange rind (crushed)	25° C.
	Artificial oil of lilac flowers	25° C.
	Oil of sandal-wood	25° C.
	Oil of rose geranium	25° C.
	Oil of rosar	25° C.
	Orange emulsion flavoring	25° C.
	Lemon emulsion flavoring	25° C.
	Lime emulsion flavoring	25° C.
	Lemon flavoring solution	25° C.

* Monsanto Chemical Co.'s Lustron.

ize. Alcohols, aliphatic hydrocarbons, weak acids and alkalies, strong alkalies and non-oxidizing acids in general do not affect polystyrene. Table II gives a list of solvent cosmetic reagents and their effects on the plastic. It should be noted, however, in interpreting this table that in several cases materials which have some effect on polystyrene in full strength, have no effect whatever when they appear in a preparation in small percentages. It is highly recommended, however, that a material considered for packaging in polystyrene be put to exhaustive tests before the plastic is adopted.

◇ ◇ ◇

Chemically, styrene is prepared by the removal of hydrogen from ethyl benzene. Ethyl benzene is obtainable to some extent from natural sources or from direct synthesis. A familiar synthetic process involves the use of ethyl chloride and benzene to form ethyl benzene which is cracked to styrene ($C_6H_5CH{:}CH_2$). Styrene can then be polymerized through the action of heat, light or catalyst or combinations thereof. In general the more rapid the rate of polymerization through the effect of heat or catalyst, the lower the molecular weight and viscosity of the resulting polymer. While all investigators do not agree, it is felt that the polymerization of styrene is a chain reaction. There appears to be a slight amount of cross linking between chains, attributable to impurities. This is effected to some degree by the rate of polymerization. The rate of polymerization also affects the molecular distribution or the range of molecular weights within a given polymer. In general it has been found that molecular weights from 70,000 to 140,000 are more advantageous for injection molding.

While polystyrene will accept plasticizers, there appears to be little to be gained through the use of these added agents at room temperature. Polystyrene can, however, be supplied in several ranges of flow. The various flow grades are

Photo 5, courtesy Monsanto Chemical Co. Photo 6, Dow Chemical Co. Photo 7, Bakelite Corp.

5—*This calling card case is an interesting use of injection molded polystyrene. It can be produced in a wide range of colors. As the illustration shows, a flick of the thumb across the roller ejects a card. This use of this thermoplastic material should suggest many possibilities to packagers with postwar plans. For a container intended for re-use the roller-ejector idea could be of great value.*

5

not accomplished through plasticization but rather through a control of molecular weight and molecular distribution. These molecular weights can be controlled through polymerization as mentioned above and through controlled milling. The use of small amounts of lubricant to improve flow and aid in the ejecting of molded pieces has been found advantageous for some complicated injection molding problems.

Since polystyrene is a thermoplastic material, it is most conveniently and economically handled by the injection process. It has been found that once machines are adjusted correctly to this material, injection molding cycles can be speeded up and often increased as much as 25%. The maximum number of pieces from each pound of material may be obtained because polystyrene has the lowest specific gravity (1.07) of any of the commercial injection materials. Polystyrene exhibits practically no breakdown during the process of injection molding and, therefore, all scrap in the form of runners and sprues can be reground and used to full advantage. These are some of the practical reasons why polystyrene has taken great strides in this particular field of injection molding.

The resistance of this material to water is phenomenal, the water absorption being so low as to be measurable only on the most sensitive equipment. Consequently, it is not affected by humid conditions or actual contact with water from the standpoint of moldability, color bleaching or dimensional stability. This particular point is one which gives polystyrene a great advantage over most other plastic molding materials, and it is an advantage which is most important in packaging applications.

So far, polystyrene has found its largest volume packaging applications in bottle and jar closures and in various types of cosmetic containers. It will be increasingly important in the molding of display containers for jewelry and luxury products, and in displays where edge lighting is to be employed. It compares with methacrylate in clarity and index of refraction.

Polystyrene also was being widely used in plain and fancy dispensing closures for liquor bottles, before priorities stepped in. It found interesting applications in transparent molded containers for small articles, as admirably illustrated by the phonograph needle package in Fig. 4.

TABLE III—RESISTANCE OF POLYSTYRENE TO VARIOUS CHEMICALS

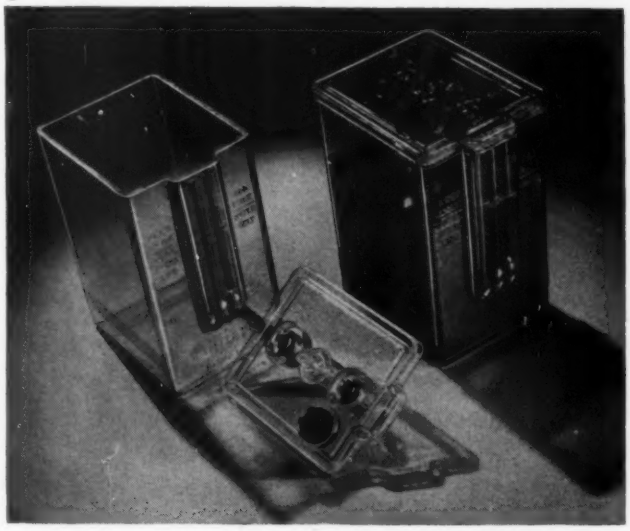
No effect	
Acetic anhydride	Ferric sulphate
Air	Formaldehyde
Aldehyde (acetaldehyde)	Hydrochloric acid (dil.)
Aluminum sulphate (alum)	Lubricating oil (cold)
Ammonia (conc.)	Nitric acid (dil.)
Ammonium chloride	Phosphoric acid
Ammonium nitrate	Potassium iodide
Ammonium sulphite	Sodium carbonate
Ammonium sulphate	Sodium dichromate
Brine	Sodium meta phosphate
Butyl lactate	Sodium meta silicate
Butyric acid	Sodium oleate
Carbon dioxide	Sulphur
Caustic soda	Sulphuric acid
Coconut oil	Vinegar
Disodium phosphate	Water (cold)
Fatty acids	

Attacked by	
Aniline	Hydrochloric acid (conc.)
Aqua regia	Kerosene
Benzol	Naphtha
Carbon tetrachloride	Nitric acid (conc.)
Chlorine	Tar acid
Fuel oil	Toluene
Gasoline	

NOTE: In general, the concentration of the chemicals used in these tests was not over 20 per cent. Tests were usually made at room temperature and the entire molded sample immersed. Tabulation of the results is more or less arbitrary. In general, momentary contact of chemical followed by washing is not harmful, except for hot concentrated sulfuric, nitric and chromic acids and bromine. Polystyrene should not be used, except momentarily, at temperatures above 50 deg. C.

***6**—Battery cases of polystyrene take excellent advantage of the material's qualities of transparency and acid resistance.* ***7**—This white liquor dispensing closure is a typical use of polystyrene. It is not harmed by contact with alcohol and it is easily cleaned simply by flushing with hot water. These two molded styrene products may suggest many postwar uses to the packager.*

6



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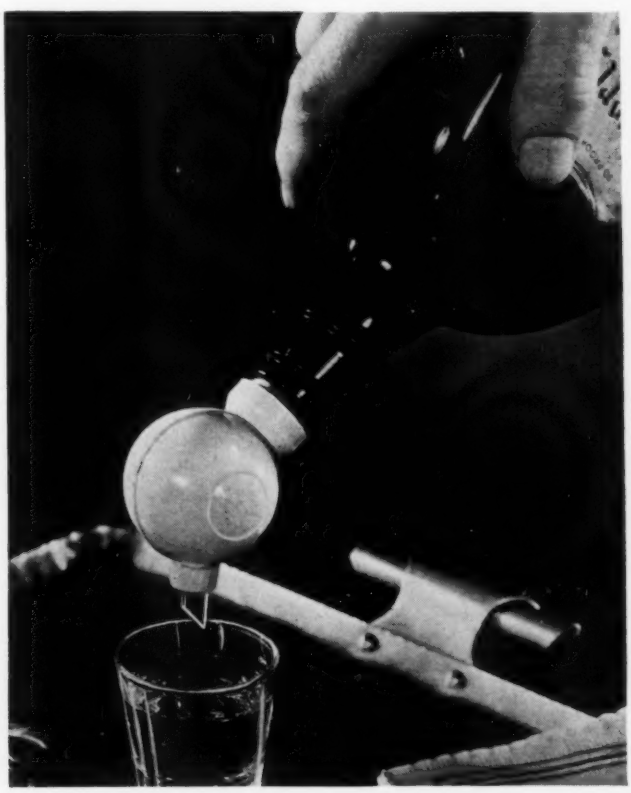
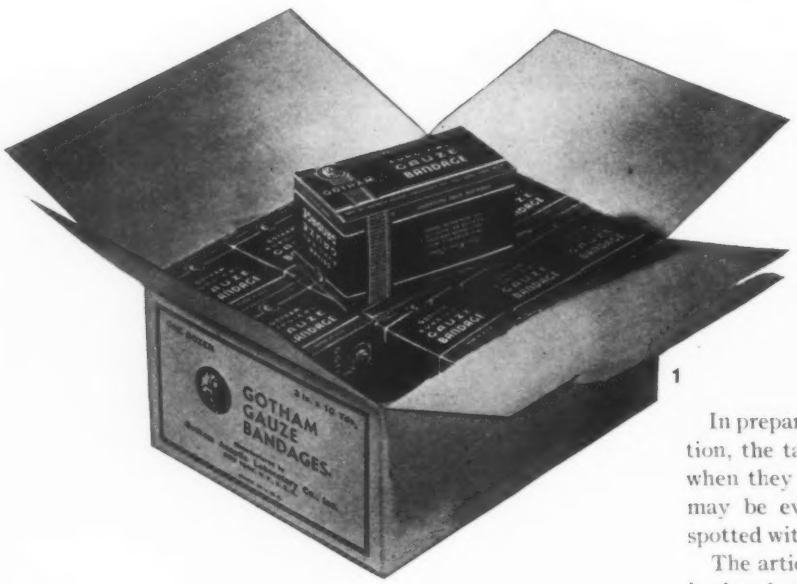


Seal and sterilize simultaneously



1

1—Packages in shipping container are removed from autoclave, sterilized and completely sealed. 2—Sealing is accomplished by the action of the steam in sterilizer on aqueous adhesive with which each of the carton tabs has been coated. Operation is done without use of special machinery.

By simply coating the tabs of a folding carton with a moisture-activated adhesive, bandage packages may be automatically sealed at the same time they are sterilized without the use of special machinery or manufacturing operations.

This discovery has been made by Paul I. Rogers, vice-president and general manager of Gotham Aseptic Laboratory Co., Inc., Long Island City. It grew out of the need to meet Food and Drug Administration requirements written into U. S. P. XII about a year ago, specifying that bandages be sterilized after packaging.

By this new method, the company has already sealed millions of multiple packages at what they say is only a fraction of the cost and effort involved in other sealing methods.

Most other methods required the separate sealing of the packages before they are placed in the autoclave for sterilizing. Through the gummed-carton method, small packages placed in larger chipboard shipping cartons are sealed while they are being sterilized.

This is accomplished because the glue on the carton flaps is activated by the steam in the sterilizing unit and is thus sealed by moisture of the steam and the pressure of one completely filled carton against the other inside the shipping unit.

The operation is covered by U. S. Patent No. 2,344,640, issued to Mr. Rogers March 24, 1944, which he is offering to license to any company without charge for the duration as a contribution to the war effort and to assist those companies that are having difficulty in obtaining proper equipment for meeting Federal requirements for the sealing of sterilized surgical dressings.

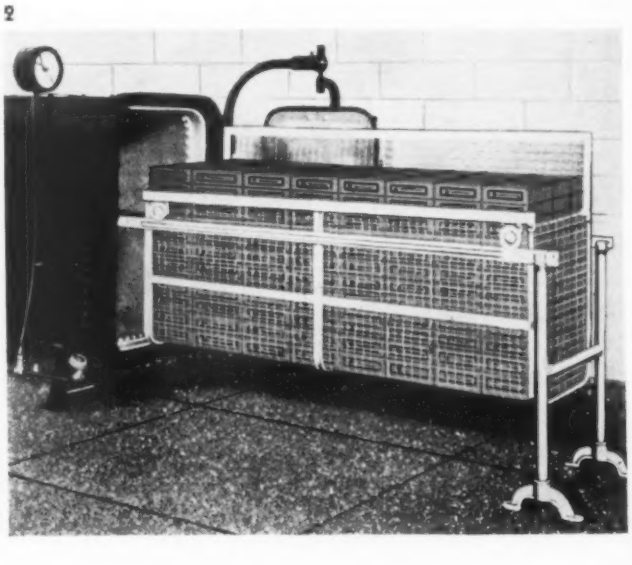
According to the patent description, this procedure for sealing packages of sterilized bandages makes use of a cardboard carton of familiar form. Such a carton is customarily cut out of a single blank and comprises a front wall, side walls, rear wall, bottom and top. The rear wall and one of the side walls are fastened together by a tab. Other tabs, die-cut as part of the blank, fold over to form the top and bottom of the carton so that the tuck-in tabs enter into the box and lie against the inner surface of the front wall.

In preparation for sealing the cartons at the time of sterilization, the tabs are coated with a moisture-activated adhesive when they are made by the carton manufacturer. The tabs may be evenly coated over their entire outer surfaces or spotted with adhesive, depending upon the sealing required.

The article to be packaged, such as a roll of surgical gauze, is placed within the box and the various tabs are folded in the customary manner without moistening the adhesive. The carton is then placed with a number of similar cartons in a shipping container. The boxes are packed preferably with a fixed wall uppermost so that folding parts are pressed in by adjacent boxes and by the carton side walls.

The cover of the shipping carton is closed and the multiple unit is ready for shipment apart from sterilization and sealing of the inside cartons. The entire shipping carton with packages inside is then placed within a double-jacketed autoclave. A 14-in. vacuum is drawn after which 20 lbs. of live steam are forced into the autoclave and kept there for approximately 45 minutes. The steam is turned off and the package and contents are dehydrated, still within the autoclave, by means of heat in the jacket and vacuum until thoroughly dried. The package may then be removed from the autoclave, ready for shipment. The inner cartons have been sealed by the action of the steam and the later drying, since all the adhesive surfaces of the tabs will have adhered to the adjacent surfaces of the box walls.

2



"A PATCH OF OVERCAST NORTHERN SKY" . . .

a colorful item in research's tireless quest for better glass

FOR years, glassmakers made sure their flint bottles were really colorless by viewing them against the light of an "overcast northern sky." This clear, cold light quickly showed up even the faintest trace of undesirable color.

But an "overcast northern sky" is not always available when it's needed. And in Armstrong's laboratories, where research in glass is going on all the time, it was important to have a convenient method for immediately checking experimental glass for color.

So Armstrong's research men brought a patch of the northern sky indoors! They designed and built a simple "viewing box" which exactly reproduced the revealing northern light. By scientific combination of the proper light sources, diffusion surfaces, and reflecting materials, they created a nonglaring, uniform, high-precision light. Now bottles can be checked for color purity any time, at the flip of a switch, in either Armstrong's laboratories or Armstrong's glass factories.

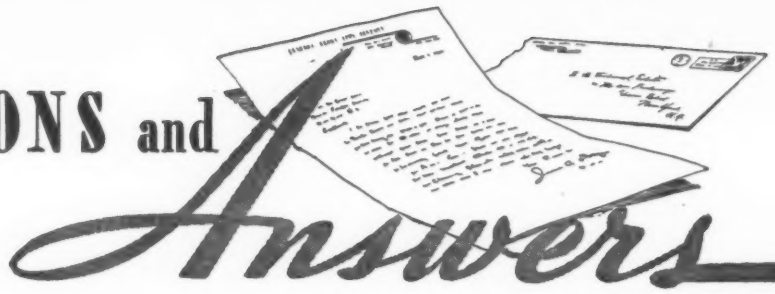
This "viewing box" is a modest example of the ingenuity with which Armstrong's research men solve the practical problems of glass control. This type of skill, backing up long years of technical training and experience, helps account for the success of Armstrong's chemists, engineers, and physicists in making and keeping Armstrong's glass top quality.

Further interesting sidelights on the skill and experience that go into the making of top-quality glass are contained in Armstrong's illustrated book, "Men and Glass." For your free copy, write Armstrong Cork Co., Glass and Closure Division, 5905 Prince St., Lancaster, Pa.

ARMSTRONG'S GLASS

and **ARMSTRONG'S CLOSURES**

QUESTIONS and Answers



This consultation service on packaging subjects is at your command. Simply address your questions to Technical Editor, Modern Packaging, 122 East 42nd St., New York 17, N. Y. Your name or other identification will not appear with any published answer.

What is relationship of pH to corrosion?

QUESTION: What is the relationship between pH and the corrosion of metals? We are manufacturers of non-corrosive Grade A papers as described in specification AXS-840—Revision 1 of the Army Ordnance.

ANSWER: pH is an index of acid activity (free hydrogen ions) and at pH 7, the neutral point, the acidity is exactly balanced by the alkalinity (free hydroxy ions). Specification AXS-840—Revision 1 has set the pH values as near neutrality as commercially possible (pH 6.5 to 7.5) for the Grade A and C materials. Therefore, if the corrosion of metals were only a function of acidity of the materials in contact with the metal the materials made in compliance with this specification would not cause metal corrosion. But this is not the fact and there is evidence to indicate that the corrosion can occur within this narrow and almost neutral pH range.

Corrosion is greatly accelerated by increased acidity but it can also be caused by certain neutral salts and by specific ions or elements. For example, so-called "buffer salts" may be added to paper to hold the pH within the specified range.

These buffer salts act to limit the acid reactions but also increase the amount of water soluble salts and may contribute a corrosive effect. This possibility is still greater if such buffers contain an element or radical which is a specific corrosive agent for the particular metal in contact with the paper. The danger of corrosion occurring in the neutral range is greatly increased by the use of coatings, sizes and plasticizers because of the variety of elements present and the fact that the finished sheet may be used as a wrapper of many kinds of metals and alloys.

Unfortunately, metallurgists have not agreed upon a reproducible and simplified performance test for evaluating the corrosive effect of wrappers on metals. It would appear that a combination of a pH value and a conductivity (electric) limit might be used to insure both neutrality and a low level of water soluble salts. Both such tests would have the virtue of being fairly easy and would give reproducible values.

Fireproofing and moldproofing

QUESTION: Can I treat paper and cloth to make them fireproof and moldproof?

ANSWER: Paper and cloth can be treated to make them fire resistant and mold resistant but not "proof" against either agent. This means paper and cloth can be so treated as to require higher temperatures to sustain combustion but it does not mean that if sufficient heat is applied that the cellulose will not be consumed.

The use of the word fireproof can only be applied to materials such as asbestos and similar inorganic compounds, because they are not consumed by fire and do not support combustion at any temperature.

Similarly, materials which normally can support molds under conditions favorable to their growth can be treated to resist to a greater degree this form of attack. Any such treatment does not give permanent resistance to all molds under temperatures and humidities most favorable to their growth. However, the effective life of cloth under such conditions can be greatly extended.

The most effective treatments of cloth and paper for increased fire and mold resistance can best be done at the paper mill or cloth bleachery. Such treatments involve carefully formulated and controlled solutions and may also require special heating or drying equipment. You should also ask your supplier or customer for performance tests or specifications because the degree of resistance imparted will determine to some extent the increase in the price of the paper or cloth.

Why the turpentine test?

QUESTION: As a manufacturer of greaseproof coatings, I cannot understand why turpentine is used to evaluate greaseproof materials under specification AXS-840—Revision 1 (Army Ordnance) when such materials are to be in contact with mineral oils and corrosion preventative compounds.

ANSWER: The turpentine test for greaseproofness was developed to evaluate rapidly greaseproof papers such as glassine, greaseproof and parchment. This test is rapid and useful as a control test in the manufacture of such papers. For this purpose, the turpentine test performs excellently and is an accurate index of greaseproofness because these papers do not obtain their greaseproofness by the use of any agent or material which is soluble in turpentine. The turpentine test is not a valid index of greaseproofness for many packaging materials which obtain greaseproofness by added coatings.

Such coatings, and there are many types available, when properly and adequately applied are capable of preventing the penetration of many kinds of vegetable, animal and mineral oils. Usually such coatings are developed for specific types of oils or fats, one kind being resistant to a group of vegetable oils, another to a certain type of mineral oils, etc. However, many of these coatings are soluble in turpentine and this test does not evaluate their true greaseproof character.

In view of this fact, you are quite right in questioning its use for coatings which are formulated to hold mineral oils.

Obviously, a test method based on mineral oil at elevated temperature is a truer index of performance for your coatings.

SLOGAN of Importance to 135,000,000 AMERICANS

When automatic Pneumatic Machinery reduces the packaging cost of products running to millions of packages annually, this has a most favorable effect on millions of American homes.

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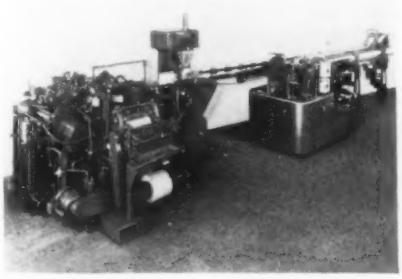

One of Pneumatic's outstanding machine hook-ups in that it produces a filled and securely sealed 'package within a package' at speeds ranging from 60 to 70 packages per minute.

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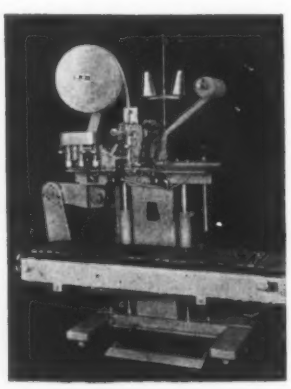
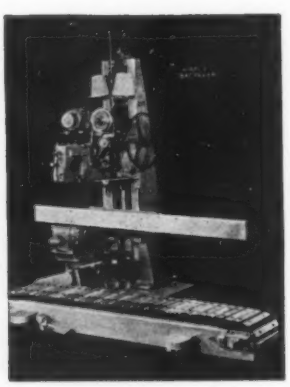
MODEL "A"

Performs the full packaging cycle, automatically weighing, filling, closing and sealing 900 one hundred pound bags per hour with only one operator.



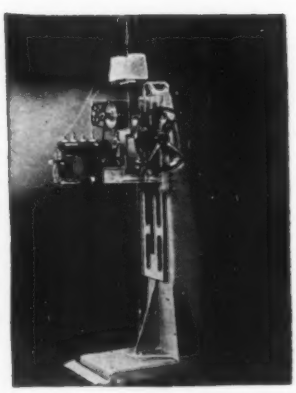
MODEL "D-A"

Automatically sews and seals at the rate of 8 bags per minute with one operator. Can be set right in your present packing line.



MODEL "E-1"

Automatically sews. Has been operated as high as 20 bags per minute. Adaptable to your existing lay-out.



MODEL "F-1"

Same as "E-1," except designed to be set up over existing conveyors.

ALL of these Bagpakers make the nationally known Cushion Stitch closure. The models "A" and "D-A" automatically apply either plain or moisture proof kraft tape over the stitching — thus effectually sealing the closure against sifting, or moisture-vapor penetration, or loss. Models "E-1" and "F-1" apply only the cushion stitch and are for use where the sealing tape is not required. Each is equipped with a specially designed sewing head which lays a thick soft cord across the bag end and cross-stitches around without going through it. This cord forms a cushion or shock absorber that takes up the strain of handling or dropping the bag, and prevents the stitching from pulling through the bag walls. The closure is in fact the strongest part of the bag.

We are prepared to give your inquiry immediate attention.

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ALL-WEATHER KRAFT BAGPAK *

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KIDDER POINTERS

KIDDER THREE POINT PRESS

No. 1. Observations of trends and indications in packaging... noted by the manufacturers of Kidder "3-Point" Presses, Kidder Press Company, Inc., Dover, N. H.

Many foods, enjoying huge volume sales during the war, due to scarcity of other foods, *may suffer severely* upon return of rationed items. Housewives say they'll continue buying these foods post-war in the following percentages: macaroni and spaghetti, 58%; prepared desserts, 46%; dehydrated soups, 38%; margarine, 28%; pre-cooked beans, 21%; soybean products, 19%. Yet it must be remembered that "corned willy", the big gripe of War I, enjoyed unprecedented sale five years after war's end.

Fish-lovers living far from the ocean can expect to be getting *live lobsters* packed in water "injected" with oxygen. Cardboard or cellophane containers are used, and a soft-rubber one-way valve permits introduction of an oxygen needle. Pressure is carried at 40 pounds.

Packagers of *vitamin tablets* have found that aluminum foil, heat-sealed, gives most protection against high humidity of tropics. It also guards against air-borne mold spores. Locking of tablets in individual cells in tapes of foil is easily done on automatic machines. Same material is suggested for liners, bags, packets and envelopes.

Less wrapping service — less retail food wrapping — reuse of heavy bags scheduled for consumer public.

Electronic tubes are being used in synchronizing operations of packaging machines. The phototube is used to *eliminate cumulative errors* in label-cutting register . . . it makes possible use of a continuous web of paper instead of individual pre-cut sheets . . . it can be operated with transmitted or reflected light on transparent, opaque, dull, glossy, shiny or colored material; its applications in counting, sorting and inspection jobs are unlimited.

New film-forming resin, norelac, gives promise for heat-sealed, moisture-proof packages. Tests show its use for *laminating and moisture proofing* cellophane, aluminum, and lead foil, glassine, kraft and sulphite papers.

Fibre containers are slated to move to market the bulk of approximately *60 billion eggs*, 1944's anticipated production. Reuse and salvage of wooden and fibre cases will help supply this need. But fibre is now making V-boxes for military supplies shipping.

The common *milkweed plant*, a former farm pest, is now a potential source for paper and other useful packaging materials. The paper industry is experimenting with 77% woody, 22% bast fibre of stalks. *Furfural* from pod shells is usable, to an extent, in making light-sensitive printing plates and dyes.

Quick-frozen *fishcakes, unrationed*, are now packaged in paperboard cartons instead of tin. Directions and helpful information are increased by printing on bottom and side panels.

Siftproof carton *research* of various manufacturers' folding cartons is a first undertaking of the new Folding Paper Box Association of America Packaging Laboratory, Chicago. Studies on manufacturing, filling and sealing reveal room for improvement in siftproof boxes.

Several *air transport* companies are creating *packaging* departments to study new shipping problem of cargo freight. The containers need greatest possible protection, smallest possible tare weight and corrugated fibreboard is an answer.

Shelves of dehydrated and compressed foods, pre-packaged meats, fresh fruits and vegetables, boned meats are envisioned for *post-war groceries*.

An excellent post-war market for *packaged candies* is foreseen — with new products in new papers. The Army purchase of 25 million pounds of candy started a "sampling" campaign proving the value of candy as a food.

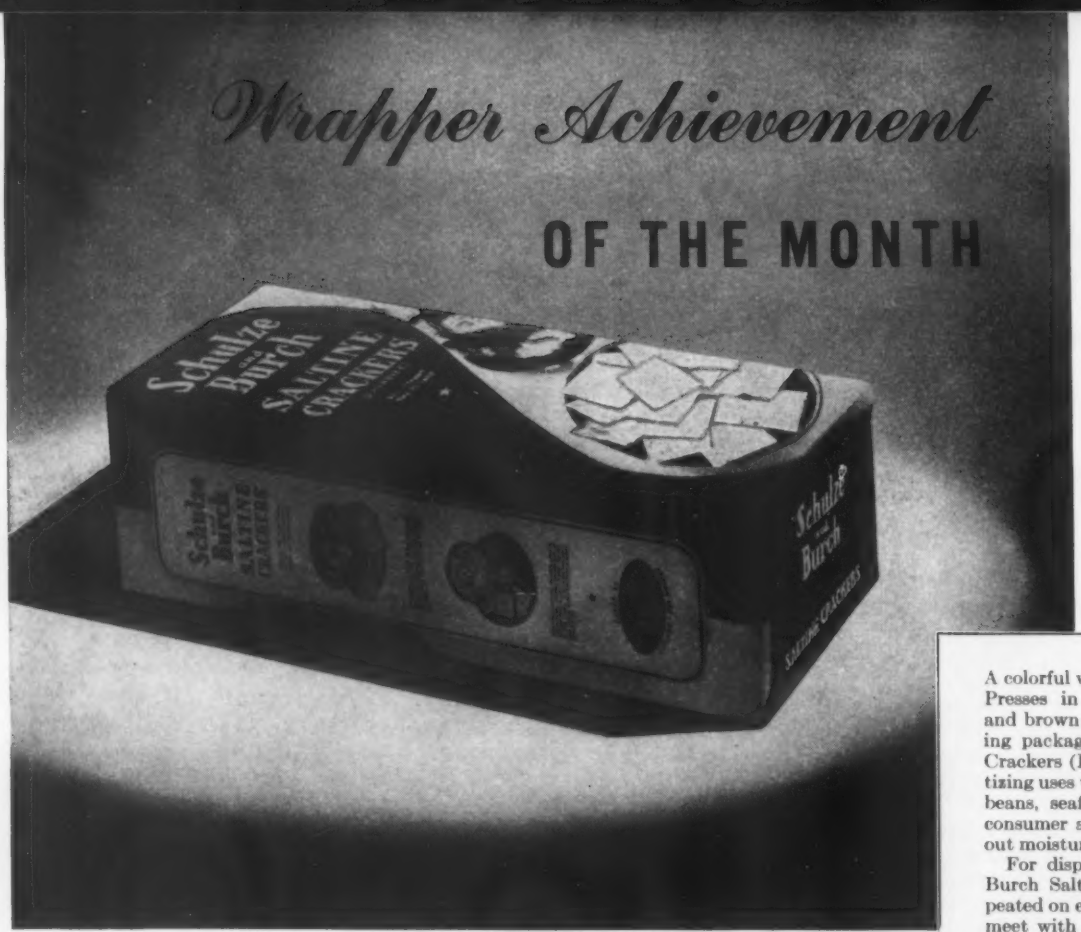
Plastic *paper oil cartons*, oil resistant and of a rigidity comparable to tin, are being made from old bones, animal tissue, tallow, grains, castor beans, flaxseed and clay plastic.

Supermarkets are demanding that the *ends* of *cereal boxes* be designed for better display with name of product and illustration used where possible. Smart cereal manufacturers are increasingly conscious of the special requirements of supermarkets which distribute about 25% of the nation's foodstuffs. With use of new materials, packaging and labelling will present new problems in *hosiery marketing* . . . which may take a tip from the cereal packagers.

Quick-freezing is getting its war-time *packaging* tests by our armed forces. Maximum protection against oxidation and dehydration are vital in delivering such foods. Moisture-proof *cellophane* is the material serving best.

KIDDER PRESS COMPANY, INC., *Printing Machinery*, Dover, N. H.

Wrapper Achievement OF THE MONTH



Watch for another Wrapper Achievement of the Month.

A colorful waxed wrapper executed on Kidder Presses in four colors — red, yellow, blue and brown — makes an inviting, eye-appealing package for Schulze and Burch Saltine Crackers (Paradise variety). Suggested appetizing uses with vegetable juices, salads, baked beans, seafood cocktails or desserts add to consumer appeal. The waxed wrapper keeps out moisture — keeps crunchy crackers fresh.

For display advantages, the Schulze and Burch Saltine Crackers identification is repeated on each side of the package . . . and to meet with supermarket packaging demands the ends are also identity-labeled.

Red is outstanding in this Carton Sealing Achievement for which Kidder Press salutes

Kalamazoo Vegetable Parchment Co.
Parchment, Kalamazoo, Michigan

Makers of Parchment • Bond • Waxed • Grease-proof • Laminated • Household and Wrapping Papers.

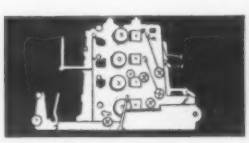
HOW KIDDER PLANS MAY FIT INTO YOURS...

For over two years, Kidder has been virtually out of the printing press business. An assignment to make important and unusually accurate units for the Navy Department has monopolized our manufacturing facilities and organization.

But Kidder engineers have been making plans for the return to our peacetime business — manufacturing "3-Point" Presses.

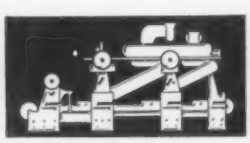
After this war, Kidder intends to resume manufacture of high-speed multi-color letter presses . . . aniline presses . . . gravure presses . . . for package and wrapper printing. To standards of design and construction well-known to the converting industry (95% of all waxed bread wrappers, for example, are printed on Kidder Presses), we intend to add a number of engineering developments that will provide even better printing.

These developments will be discussed in due season. Meanwhile, we invite you to acquaint us with your requirements, so that we may better direct our energies when our current war work reaches its conclusion. A talk with a Kidder engineer will involve no obligation.



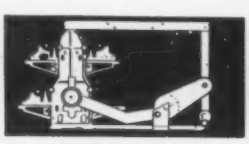
MULTI-COLOR LETTER PRESSES

for waxed paper, box wrappers, etc., rewound or sheet-delivered — up to 72".



MULTI-COLOR GRAVURE PRESSES

for cellophane, foil, pliofilm, etc. — rewound or sheet-delivered — up to 36".



MULTI-COLOR ANILINE PRESSES

for decorative papers, cellophane, glassine, etc. — up to 52".

SLITTERS & REWINDERS

for paper mill finishing rooms and small-roll, high-speed slitting — up to 72".

KIDDER

Manufacturer of "3-Point" Presses — so-called because they fulfill the three major requirements for perfect printing

CONTROL OVER THE PAPER

PROPER DISTRIBUTION OF INK

ACCURACY OF THE IMPRESSION

KIDDER THREE POINT PRESS

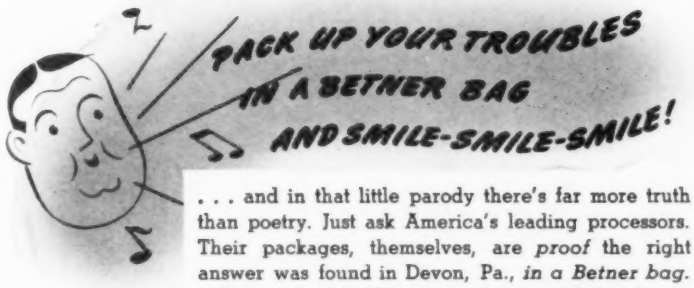
KIDDER PRESS COMPANY, INC.,

Printing Machinery, DOVER, N. H.

PRINT IN BINDING

America's No. 1

INSTITUTIONAL PACKAGING SERVICE



. . . and in that little parody there's far more truth than poetry. Just ask America's leading processors. Their packages, themselves, are *proof* the right answer was found in Devon, Pa., *in a Betner bag.*

Frozen foods? The packaging world hasn't yet found more practical containers than Betner's Thermoseal-and-Lamofilm Bags . . . scientifically designed for quick loading, speedy sealing, maximum moisture-vapor protection . . . with a minimum of packaging equipment. For coffee, powdered and dehydrated foods, cereals, flour mixes . . . same answer. Betner's Thermoseal plus Lamofilm meets every requirement—prevents leakage, seepage, loss of quantity, loss of flavor!

And the price won't worry you! These bags are *economical*—a point to be remembered in laying your post-war plans. Artwork worries are also solved right here in Devon, Pa., by our own expert art staff, our own giant printing presses—a complete packaging service from idea to finished bag!

A letter to us sets our brains a-working on your problems. Post it today. No obligation on your part.

Benj C Betner Co DEVON, PA.

WASHINGTON REVIEW

by R. L. Van Boskirk

● **Redesign and Re-Use to Save Paper**—Re-use of old containers continues to be the most important subject of the day in the field of packaging. Almost every order or press release concerning containers has a background involving used packages of one sort or another.

Because it is such a good example, the cereal situation is used here again to point out the seriousness of the container shortage. Last year the Government asked for a 25% raise in production. This year they are asking for a 15% raise over that. But only 100% of the container board used for packaging cereals in 1942 can be used in 1944. In ordinary times that would seem like crazy manipulating, but the Government is frankly depending upon business ingenuity to package more goods with less container board.

In addition to the publicity campaign which is gaining momentum as users begin to meet the container shortage in their own plants, other factors are rapidly coming into play. Fruit and vegetable growers are not only being asked to buy there boxes and crates now for later use, but are being educated to use whatever they can obtain instead of insisting on a particular box for a particular product. Another facet stemming from the container shortage was amendment of the steel strapping order M-261 to permit steel strapping for domestic of 90 lbs. or less. It is expected that the new amendment will not only save lumber, fibreboard, twine, rope and paper, but will also make fibre containers more suitable for re-use.

But the big push in paperboard conservation today is swinging toward redesign. All the other programs are fairly well under way. The pressure for redesigning is now the center of attention Even though a user may have redesigned six months ago, he may be asked to try again and save still more paper.

J. D. Malcolmson of Robert Gair, Inc., is in charge of the Re-Design campaign. He has set up a technical staff in the Paperboard Division of WPB. His deputy chief is Philip Holton, manager of the Indianapolis plant of Inland Container Co., who will specialize on corrugated boxes. The technical staff has been created to help save paperboard by giving constructive aid to hard pressed users. It is in direct contrast to directives which say: "thou can't" and "thou shan't." When a man comes in to point out his hardship under L-317, the administrator of that order may now take him by the hand and lead him to the technical section where his problem will be discussed with the possibility of showing him how to stretch his containers in order to get the needed footage.

For example: a user came in with a lightweight, indestructible commodity that had been cut to 70% of 1942 container usage. He was shown how he could change the shape of his box so that it would hold twice as many items as before and still stay under the freight limits for size. The new shipping container would save 27% in footage. Presto: the user had practically the same container space as before but cut his usage of container board by 27% and shipped practically the same amount of goods. That is the kind of service the new technical division hopes to give to many users.

Mr. Malcolmson says that the greatest need at present is industry cooperation. It is impossible to find enough men to build up a field staff so he would like volunteer reports on examples of paper wastage. This is in no sense a snooper's or informer's job. If a report is made in the right spirit it is a patriotic action—wasting paper is as dangerous as wasting gasoline or rubber. The user will have an over-packaged item called to his attention and suggestions will be made for redesigning to save paper. In some cases it is the Government's fault. Army and Navy specs may require it. If such is the case attempts will be made to have the specifications changed—the Government is even more eager to get more paper for V-board than the users themselves.

A good example of Government cooperation was that of a food item packed in an eight ounce can—48 to a V-box. The specs have been changed so that this same item can now be packed 72 cans to the box. The new spec will save 3,000 tons of V-board during the next year. Of course the same technique cannot be applied to every commodity—each item is a separate problem.

The best authorities on over-packaging are the packaging engineers who designed the original container or the user of the package. They know the most about it because they are familiar with the items that were overpackaged when paper was plentiful and military safety seemed to demand unusual protection. In those days everyone went to town on over-packaging. It has been proved since that perhaps some airplane parts packages, for example, did not need to be quite so stout. There is today no intention to cut to the danger point, but if a pad can be cut here and there, the overall picture might become much better.

Particular attention should be given to the shape of boxes. It is generally believed that a cube uses least footage, but that belief is not strictly true. When there is a single thickness of material, such as tin, the statement is true. But the same thing does not apply to a corrugated box because of the double thickness, due to flaps, at top and bottom. The least footage in a corrugated box is in a specimen in proportion to the dimensions 2 by 1 by 2. This means two lengths by one width by two depths (distance between openings). A sample by inches would be 10 in. long by 5 in. wide by 10 in. deep (top to bottom).

The importance of doing everything possible to prevent the slightest tendency toward over-packaging cannot be stressed too often. The struggle for paper between various industries is reaching the quarrelsome stage. Publishers and container users are practically making faces at each other, each accusing the other of wastefulness in paper consumption. Scarcely a day goes by when some container user is not accused of packing his product in fancy or unnecessary packages or wrappings. It behooves every container user to see that he gives no excuse to other paper users for finger pointing.

● **Adhesives Grow More Critical**—Little publicized, but vitally important to the paper container industry, is the glue situation. All packaging has to be sized or glued. Last year the glue industry did a volume of almost $30,000,000. With so much furor devoted to the paper shortage, few persons have paid much attention to the steadily increasing shortage of glue. Even the Armed Forces with their ever-increasing calls for V-boxes are inclined to ignore glue because they purchase almost none, yet it is essential in many of their most-needed items. Local manpower com-

AMOCO MOTOR OIL
Goes to the front in these special containers.

Service Station at the front

No computing gas pumps . . . no "Clean Rest Rooms" . . . and if you're talking about "free air" you mean a sky swept free from enemy airplanes.

But that's the sort of wartime service station to which Amoco Motor Oil is being delivered today . . . delivered by the efforts of the Navy and the Coast Guard to help maintain the Army's motorized equipment.

And when Amoco Motor Oil travels to the front . . . it travels in specially designed Crown kits . . . about five-gallon steel containers that protect the oil from sea water and sand . . . from rough handling under battlefront conditions.

Supplying those containers to the American Oil Company is one more of Crown Can's wartime jobs . . . one more way an organization that so faithfully served America's peacetime needs is pitching in to help speed victory!

CROWN CAN COMPANY, New York • Philadelphia
Division of Crown Cork and Seal Company, Baltimore, Md.

★ ★ ★ ★ CROWN CAN ★ ★

missions are frequently ignorant of its importance and might even classify a glue manufacturer with the less essential industries.

Hardest hit branch of the industry is hide and extracted bone glue. Their position was put in the forefront when Limitation Order M-367 was cancelled because hide glue had been over-allocated and producers were scraping the barrel. Allocation order M-300, Schedule 8, effective last April, was put into force so that WPB can spot inventories in consumer's plants and no over-ordering is permitted. The new allocation system permits producers to build up their stocks and the glue can then be allocated to wherever it may have the best end use. In some cases, when hide glue is unavailable, green bone glue will be substituted.

Green bone glue will be permitted up to 100% of 1943 usage. However the demand is considerably above 1943 because great quantities of this type glue are going into gummed tape which is in extra high demand because it is so useful in the Re-Use program.

The following table based on the allocations of hide and extracted bone glues gives a bird's-eye view of the complete glue situation. In most cases where the allocation for bone glue has been severely cut it will be noted that substitute glues are mentioned. WPB officials feel that hide glue can be made to go much farther if users will try the suggested substitutes in each industry where a specific recommendation has been made.

HIDE AND EXTRACTED BONE GLUES
Second Quarter Allocation

Industry	*% of 1943 usage*	
Abrasives:		
Including all grinding and polishing and coated abrasives	100	
Adhesives:		
Including flexible glues, compounds, liquid glues, pastes and other adhesive preparations made from animal glue (Starches and casein are available.)	65	
Bookbinding: (All types)	70	
Containers:		
Paper, wood and fibre, including barrels, tubs, etc., ammunition shell containers and boxes	65	
Cork Products:		
Including crown caps and excluding engine gaskets (Casein and phenolic resin glue can be used.)	65	
Gaskets:		
Cork, paper and fibre	100	
Gum Paper and Tape:	40	
(WPB is trying to force more use of green bone glue for this product. Cattle kill is high and green bones available.)		
Matches:	80	
Paper and Paper Products not otherwise listed:	60	
Sveen saveall	100%	This new method using glue saves fibre and pulp.
Blue print	100%	Practically all military uses.
Currency paper	100%	
100% rag content	100%	
Cap closures	65%	Can use other type adhesives.
Flashlight cases	80%	
Drinking cups	80%	
Map and chart	100%	
Printer Rollers:	90	

Another serious spot in the adhesive picture is the corn starch situation. Some mills have stopped production for varying periods of time due to inability to get corn. At the present time farmers would rather feed corn to hogs than sell it for industrial purposes.

The same situation developed last year and users were warned of a recurring possibility, but paid little attention according to Agriculture Department officials. Production was at an all time high in January 1944 and things looked rosy, but today production is down to about 60%. Users have little if any stockpile and some of them are in a desperate plight. There is a fair amount of tapioca starch on hand which may be substituted, but the cost is greater.

The five-month period from April through August is almost certain to be critical. Last year there was scarcely enough corn for industrial purposes and yet in April of 1943 there were 40,000,000 bushels in elevators. At the same date this year there were only 14,000,000 bushels in elevators and a great part of that is going to be used for stock feeding. This amount represents just one month's normal supply for war industrial uses including alcohol, textiles, paper, etc.

More and more paper box manufacturers are going to get caught in this jam. No one knows just how the problem will be solved, but here is what a user of starch glues can do:

Write to his supplier and tell exactly how much he has on hand.

Estimate what he will need.

If he has a war contract, tell what it is.

He is advised to use one-fifth of his inventory each month for the next five months. For example, if he has 100,000 lbs. he would use 20,000 each month. If he needs 35,000 lbs. in any given month, he would order 15,000 lbs. only and thus help to prevent piling up of inventories and uneven distribution.

● **Coordination Between Containers and Paper**—Evidence has passed the rumor stage to indicate that closer coordination between the Containers and Paperboard branches of WPB is in the cards. There is not much likelihood that Paperboard will go back to Containers but there is reason to hope that their actions may be more closely coordinated.

● **Aluminum Closures**—Packers of food and medical products that were customarily packaged with aluminum closures before wartime restrictions were imposed on that metal will be permitted aluminum, within quota limits, for their glass container closures.

Glass bottled tomato products, notably catsup and chili sauce, are the principal foods to be affected by this change.

WPB also announced that the use of aluminum closures for blood plasma will be permitted without specific WPB authorization. In the past, aluminum was granted for that purpose upon appeal to WPB.

Blackplate steel for beverage bottle crowns is no longer limited to rejects, WPB also said.

These changes appear in the form of an amendment to order L-103-b.

● **Restrictions Lifted on Plastic Collapsible Tubes**—Collapsible tubes made exclusively of plastic, with or without the addition of a steel fastener at the bottom of the tube, are specifically exempt from regulations affecting other collapsible tubes, according to a recent announcement of the WPB.

Before this amendment, plastic collapsible tubes were theoretically barred from production. WPB officials in the Containers Division never intended to prohibit the use of plastic collapsible tubes and enacted this amendment to clarify the order. Most plastic tubes were made of acetate to serve as a container for medical goods. Up to date, they have not been entirely successful due to water absorption. Container Division officials are desirous that the experiments continue and wrote this amendment to prevent interference with research now under way. But, of course, any plastic material used for this purpose must run the allocation gauntlet before it will be made available.

● **Glass Container Closure Quota**—An interpretation of the Glass Container and Closure Quota Order, L-103-b, was issued April 3, 1944.

In computing his base period quantity of new glass containers and new metal closures, upon which his current quota for a specific product is based, a packer:

(1) may not include in the computation more units than those permitted him under WPB regulations applicable during the base period, 1943.

(2) may include in the computation any new containers or closures granted to him as a result of appeal to WPB and either accepted if quota is based on acceptance or used if quota is based on use.

This interpretation further clarifies paragraph (g) and sub-paragraph (1) of the quota order.

● **Paper Allocations**—A total of 4,335,353

War Plants and Services "PACKAGE" THEIR PASSES

PLANT identification passes should be tamper-proof . . . and can be made that way easily and economically with Eastman Acetate Sheet.

Double lamination of the photographic pass with .015 transparent Eastman Acetate Sheet assures protection against counterfeiting or alteration of any kind. It eliminates defacing and smudging due to frequent handling. Under heat and pressure, Eastman Acetate Sheet laminates the pass, front and back, and molds it into one complete unit. No additional bonding agent is required.

Toughness and complete transparency make Eastman Acetate Sheet the logical choice for this particular job. And it's handling many other war jobs just as efficiently and satisfactorily.

At present, all production of Eastman Acetate Sheet is earmarked for high priority orders only. But you'll want to include Eastman Acetate Sheet in your postwar packaging plans. For complete information on Eastman Acetate Sheet, write to the Chemical Sales Division, Eastman Kodak Company, Rochester 4, N. Y.

YOU'RE INVITED to make full use of the Kodak Packaging Laboratory to brush up on basic fabricating operations with the help of trained Kodak technicians.

Eastman Acetate Sheet

ATTRACTS · PROTECTS · SELLS

tons of paper and paperboard will be manufactured during the second quarter of 1944, according to Harold Boeschenstein, Director of the Forest Products Bureau.

Under the allocation program, the minimum quantity of paper and paperboard to be produced in the United States in each general category from 2,656,539 tons of wood pulp allocated for this purpose will be as follows:

GRADES OF PAPER AND PAPERBOARD	Minimum production (in short tons)	
Newsprint	180,000	
Book and Groundwood Printing, Business and Converting Papers	478,548	
Fine Paper	222,534	
Coarse Paper	480,818	
Multi-Wall	91,434	
Special Industrial	63,246	
Sanitary Paper	206,897	
Tissue Paper	36,273	
Absorbent Paper	23,819	
Building Paper	243,949	
TOTAL PAPER GRADES		2,027,518
Container Board	1,110,498	
Folding Boxboard	507,555	
Setup Boxboard	189,315	
Cardboard	15,471	
Building Board	289,342	
Miscellaneous Paperboard	195,654	
TOTAL PAPERBOARD GRADES		2,307,835
GRAND TOTAL PAPER AND PAPERBOARD		4,335,353

● **Casein for Paper**—Approximately 26 million pounds of casein will probably be made available to the paper coating industry during this year, according to Lyman A. Beeman of the Paper Division at WPB. Although the proposed allotment for paper making is about five million pounds larger than last years' consumption, he said it was considerably below the usage in 1941, which amounted to 37 million pounds.

● **Swapping Orders for Containers**—More and more attention is being directed toward Order TR-2 (Haulage Request) which permits a manufacturer to transfer his order for containers to another manufacturer of the same type of goods who may be closer to the customer. Since the order was issued last January fair acceptance has been accomplished, but the Containers Division in particular is eager to see more manufacturers take advantage of it. It saves countless ton miles of haulage and in addition saves extra handling of containers and thus makes them more capable of re-use.

By the terms of that order a manufacturer of paper bags in Boston, for example, may take the order of his customer in Racine, Wisconsin, and turn it over to another manufacturer of bags in Chicago. The Boston manufacturer bills his Racine customer and is in turn billed by the Chicago supplier who actually furnished the goods. The transaction might be reversed and the Boston supplier would then serve a Haverhill customer of the Chicago supplier. The example perhaps is farfetched, but it illustrates the mechanism of the order. Containers of many sorts are listed as permissible merchandise under the order and are thus exempt from antitrust regulations.

At the present time the order is based on a strictly voluntary basis. If it is widely accepted as a voluntary system, it may obviate the necessity of more stringent legislation later.

There has been some complaint because suppliers fear that they might suffer permanent loss of their customers in the new supplier's territory. WPB officials point out that such results are not likely because all contact is maintained between the original supplier and his customer. The transaction is maintained between the two original parties and the third party enters only as a temporary participant. Railroad managers point out that they are exerting every effort to divert every ounce of freight possible to other channels, but expect to get it all back after the war by good old fashioned sales methods if necessary. They think individual business firms can do the same. In addition there is a patriotic motive involved. It is no different from the situation faced by container board manufacturers who might fear that wide use of second-hand boxes would result in a decrease of new box business after the war. Scores of other examples might be sighted in this war economy such as the reduced freight rates allowed for used fruit and vegetable boxes shipped back to growers in the South. The railroads certainly do not expect to continue that practice which will be unnecessary after the war.

If additional information is desired it can be obtained by writing to the WPB, Washington 25, D. C., reference TR-2 (Specify Material).

● **Someone Will Have to Go Without Paper Bags**—Increased military requirements for fibre shipping containers, waterproof papers, map, multiwall bags and other essential papers made from kraft pulp, will materially reduce the available supply of civilian products such as paper bags and wrapping paper during the second quarter of 1944, members of the Over-All Paper Industry Advisory Committee were told by Rex W. Hovey, Director of the Paper Division of WPB, recently.

Although over-all production of paper and paperboard during the first two months of 1944 averaged slightly under the recommended minimum monthly production of 1,406,000 tons, the shortage of pulpwood and pulp, as well as waste paper, makes it necessary for continued conservation, re-use and salvage of all types of paper and paperboard, Mr. Hovey pointed out.

The Forest Products Bureau, will direct the production of the most essential papers ahead of all others, and it is obvious that there will be little kraft paper for anything except for military and industrial uses. Maintenance of civilian paper supplies can only be assured through increases in production, as it is necessary to meet military demands first, he said. He expressed the hope that the peak of military requirements would soon be reached.

Referring to estimated requirements of containerboard, Mr. Hovey said he believed them to be higher than could be manufactured, but added that the armed services first would get what containerboard they need, and then civilian requirements would be taken care of. He also pointed out that control over the use of multiwall bag paper, wrapping paper and certain other papers would be established by WPB to make sure essential requirements would be met.

● **No Improvement for Metal Containers**—Packers and shippers who use tin cans, steel drums, pails and metal closures cannot expect improvement in the availability of those supplies during the next six months, Edward J. Detgen, Director of the Containers Division of WPB, said recently.

"There is no thought, in the Containers Division, of ralaxing in the near future any of the metal containers limitation orders affecting tin cans, steel drums, pails and metal closures," Mr. Detgen emphasized.

In general the type of steel used for these containers is the same as that required by several of the most urgent military programs. As rolling mills are now working at capacity, and no drop in military sheet steel requirements is in sight, no steel for additional containers can be anticipated in the near future, Mr. Detgen said.

● **Briefly**—Paint manufacturers are unlikely to receive any adjustments this year in their container quotas under Order M-81. . . . Waste paper collections are far behind estimates for the first quarter, and inventories consequently are little higher than they were Jan. 1. . . . Any person who requires container board for any purpose whatever is prohibited from accepting it without specific authority of WPB, according to an interpretation of M-290. . . . WPB has modified its order covering control of container machinery to permit the exchange of leased equipment requiring factory rebuilding or reconditioning for new reconditioned or rebuilt units of the same size and type without the necessity of first obtaining a preference rating order.

"SPECIFY CYANAMID'S BENOWAX"

FOR MOISTURE-VAPOR RESISTANCE IN WRAPPING AND CARTONING MATERIALS

TYPICAL CHARACTERISTICS OF VARIOUS GRADES OF BENOWAX

	Subject to Allocation			Not Subject to Allocation		
	BENOWAX C	BENOWAX B	BENOWAX F***	BENOWAX L	BENOWAX P	BENOWAX Q
Gravity, Liquid State (A.P.I., Theor. corrected to 60°F.)	35	34.3	35	8.8		
Melting Point (A.S.T.M. D127-30°F.)	140-45	150-55	145-50	*157-63	153	135
Penetration (A.S.T.M. D5-25, 77°F. 100G, 5 Sec.)	35-40	15-20	50-60	30-35	141	34
Viscosity (S.U.V. at 210°F.)	60-70	76	60-70	**430	79	52
Color (N.P.A., melted state)	4 dilute	—	4 dilute		7-8	4
Color (solid state)	Brown	Light Brown	Brown	Black	Amber	Light Amber
Flash (O.C.°F.)	500	525	500	540	555	450
Neutralization No. (No. Mg KOH per gram)	.20	.02	.20	1.8	0.02	0.01
Carbon Residue, %	.15	.50	.15	3.5	0.13	0.08
Iodine No. (Mod. Hanus)	5.5	7.0	5.5		4.4	3.9
Specific Gravity (60°/60° (Theor.) Liquid State)	.849	.853	.850	1.008	0.898	0.905

*Softening Point (A.S.T.M. D-36-26) **350°F.

***Subject to allocation but in ample supply*

Developed for the specific purpose of providing dependable resistance to moisture-vapor penetration in wrapping and cartoning materials, the various grades of BENOWAX are both low in cost and flexible even at low temperatures. Although not recommended as an exposed coating material for some purposes, BENOWAX when used as a laminating substance, effectively retards the transfer of moisture-vapor without impairing flexibility in any way.

The following characteristics make BENOWAX outstanding as a laminating material:

1. When used as a laminating agent, the moisture-vapor resistance of BENOWAX compares favorably with many films ordinarily considered moisture-vapor proof.
2. It provides a certain degree of grease and oil resistance.
3. It exhibits good pliability, fair to strong adhesive power, depending upon the grade selected.
4. Some grades protect package contents from deterioration due to light.
5. It is low in cost (a fraction of that for many materials that have been used for rendering paper moisture-proof).

Certain of the various grades of BENOWAX . . . an amorphous petroleum wax . . . have become so important in the manufacture of moisture-vapor proof wrappings for war goods, that they are available only for such military uses.

There are, however, other grades of BENOWAX . . . notably F, L, P and Q . . . that may be obtained for less essential uses. Accordingly, you may find that a BENOWAX will serve your purpose without modification. However, should they not meet your exact specifications, they may be used as extenders for the more critical micro-crystalline waxes. In this way, they can help you through these days of emergency replacements.

American Cyanamid & Chemical Corporation

(A Unit of American Cyanamid Company)

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DISTRICT OFFICES: Boston, Mass.; Philadelphia, Pa.; Baltimore, Maryland; Charlotte, N. C.; Cleveland, O.; Chicago, Illinois; Kalamazoo, Michigan; Detroit, Michigan; St. Louis, Mo.; Azusa, Cal.; Seattle, Wash.

WAXES • WAX SIZES
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RESINS • CASEIN • ALUM
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DEFOAMERS • SODA ASH
CAUSTIC SODA • SALT CAKE • ACIDS
CLAYS • SATIN WHITE • AEROSOL*
WETTING AGENTS • CALMICRO
(CALCIUM CARBONATE) AND
OTHER PAPER
CHEMICALS
*Reg. U.S. Pat. Off.

U. S. patent digest

This digest includes each month the more important patents which are of interest to those who are concerned with packaging materials. Copies of patents are available from the U. S. Patent Office, Washington, at ten cents each in currency, money order or certified check; postage stamps are not accepted.

SHIPPING BOX. J. K. Limbert & W. G. Brane & N. McClure (to Central Fibre Products Co., Chicago, Ill.). U. S. 2,340,394, Feb. 1. A shipping case embodying therein an open top rectangular body made from a blank of sheet material formed to provide a bottom and upright sides.

CONTAINER. J. W. Meaker, Evanston, Ill. U. S. 2,340,546, Feb. 1. An air-pervious bag closed except for a relatively small-valved filling opening to snugly receive a filling spout adapted to contain pulverulent material.

WRAPPER. J. E. Snyder (to Wingfoot Corp., Wilmington, Del.). U. S. 2,340,774, Feb. 1. A cigar wrap formed of rubber hydrochloride film coated on the interior and at least one end, with a moisture-proof coating having heat-sealing properties.

BOTTLE. M. S. Weaver, Aberdeen, N. C. U. S. 2,340,353, Feb. 1. A bottle comprising a neck thereon provided with a mouth slanting relative to the neck, and equipped with a locking ring surrounding the neck.

CONTAINER & BLANK THEREFOR. T. S. Okonski (to The Consolidated Expanded Metal Companies, Wheeling, W. Va.). U. S. 2,340,422, Feb. 1. A package comprising contents of a plurality of nested flexible elongated members of generally L-shaped cross-section.

CONTAINER. O. Johnson, Bronxville, N. Y. U. S. 2,340,473, Feb. 1. A multipart container including a tubular body of rigid though yielding material constricted to angular form intermediate the ends thereof with the opposite sides of the constricted portion extending in parallel relation.

CONTAINER. L. E. Denison (to Brooks Paper Co., St. Louis, Mo.). U. S. 2,340,651, Feb. 1. In combination, a container, a member fixed flatwise on a wall of the container, said member and the container-wall being kerfed as a unit for providing a discharge outlet through both said member and the container wall.

MULTIFORM ENVELOPE. V. J. Sawdon, Bronxville, N. Y. U. S. 2,340,700, Feb. 1. A multiform envelope structure comprising a cover section, an integral pocket-forming section separable from the cover section and arranged to form a return envelope.

NONREFILLABLE BOX. W. H. Inman (to Bloomer Bros. Co., Newark, N. Y.). U. S. 2,340,753, Feb. 1. A nonrefillable box of paperboard material.

CLOSURE FASTENER FOR CONTAINERS. W. H. Inman (to Bloomer Bros. Co., Newark, N. Y.). U. S. 2,340,754, Feb. 1. A closure fastening means for a carton of the type formed from a single sheet of flexible material cut, scored and folded to provide a bottom, side walls including corner folds and a top closure.

COLLAPSIBLE TUBE HOLDING AND DISPENSING MEANS. W. C. Oursier, Jacksonville, Fla. U. S. 2,340,681, Feb. 1. A collapsible tube holder and dispenser comprising a supporting plate, a carrier plate swingably supported on the supporting plate, means for supporting the collapsible tube on the carrier plate.

CLOSURE. E. J. Nawoj & J. Storner (to Baxter Laboratories, Inc., Glenview, Ill.). U. S. 2,340,419, Feb. 1. A resilient plug adapted to be received within the neck of a container and equipped with at least one passage extending from the bottom to the top thereof.

CONTAINER VACUUMIZING & CLOSING APPARATUS. F. J. O'Brien (to Continental Can Co., Inc., New York, N. Y.). U. S. 2,340,341, Feb. 1. An apparatus containing a pre-vacuumizing chamber, a container vacuumizing and closing chamber having a vacuum therein higher than the vacuum-obtaining in said pre-vacuumizing chamber.

FEEDING & SERVING MECHANISM. C. H. Brinton & W. E. Zimmermann (to Standard Cap and Seal Corp., Chicago, Ill.). U. S. 2,340,639, Feb. 1. A plurality of article retaining means, each adapted to temporarily hold a plurality of articles to be delivered with receiving device for said articles having a single serving outlet.

PACKAGING MACHINE AND CIRCULAR APPLYING MECHANISM THEREFOR. M. J. Milmoe & C. J. Malhiot (to F. B. Redington Co., Chicago, Ill.). U. S. 2,340,678, Feb. 1. A packaging machine adapted for the packaging of articles within hinged-lid containers.

PACKAGING APPARATUS. C. J. Malhiot (to F. B. Redington Co., Chicago, Ill.). U. S. 2,340,835, Feb. 1. A packaging apparatus comprising means for conveying a package having a projecting tab element along a predetermined path.

METHOD OF PACKAGE WRAPPING & SEALING. M. J. Milmoe & M. J. Milmoe (to F. B. Redington Co., Chicago, Ill.). U. S. 2,340,836, Feb. 1. The method of packaging an article which comprises applying and folding a wrapper about the article.

BOTTLE. G. A. Kanzaki, New York, N. Y. U. S. 2,341,102, Feb. 8. A bottle and cap construction for preventing the cap from becoming stuck to the outside surface of the bottle neck.

SEALED PACKAGE & METHOD OF MAKING SAME. Garrison Householder & W. V. Shearer (to Plastic Coating Corp., Holyoke, Mass.). U. S. 2,341,379, Feb. 8. A package comprising a container formed of cardboard or the like having on its outer surface a heavy coating of wax, and a tamperproof seal for the closure of said container.

CONTAINER ATTACHMENT. M. J. Nevins, Jr. (to Nevins-Church Press, New York, N. Y.). U. S. 2,340,976. Feb. 8. The combination with a container having an open window in its front wall adjacent the bottom thereof, and accurate slots in the sidewall, of a combined closure and tray, said tray having a flap extending into the bottom of the container.

CONTAINER & METHOD. G. A. Moore (to Shellmar Products Co., Mt. Vernon, Ohio). U. S. 2,341,056, Feb. 8. An article which comprises a rectangular blank of suitable heat-sealing container material having a score line intermediate the ends of said blank.

PLANT SHIPPING CONTAINER. C. E. Gardner, Osage, Iowa. U. S. 2,341,374, Feb. 8. A plant shipping container comprising a pair of polygonal-shaped end members and a tubular wall member spanning the distance between said end members.

DISPENSER FOR SHEET MATERIAL. C. A. Flood (to Dennison Mfg. Co., Framingham, Mass.). U. S. 2,341,368, Feb. 8. A guide for guiding an elongated strip of sheet material as the strip is pulled endwise from a container.

WRAPPER. H. B. Tuthill (to Oliver Machinery Co., Grand Rapids, Mich.).

MEAL-TIME *Tune Up!*

Among the many famous products made by The H. J. Heinz Company is Heinz Mustard—which makes both food and family sing. Long one of America's most popular condiments, Heinz Prepared Mustard goes a long way toward giving wartime foods an old-fashioned goodness . . . in salads, sauces and on sandwiches.

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CROWN CLOSURES

Crown's Wartime Policy: To supply closures, containers and services for packaging foods, beverages, chemicals, etc., needed by civilians and the armed forces. To build an ever-increasing volume of vitally needed weapons of war for our fighting men.

U. S. 2,341,492, Feb. 8. An article to be wrapped having upper and lower flat sides, a wrapper member located against the under flat side of said article and having a marginal projecting portion turned upwardly to lie against the sides of the article.

BAG-HANDLING MACHINE. W. D. Kimball & M. McFaull & C. I. Brarer, New York. U. S. 2,340,883. Feb. 8. A machine with supporting member having at least three flanged rollers mounted thereon to rotate about vertical axis, with a bag mouth supporting frame.

APPARATUS FOR SEALING CONTAINERS. H. E. Stover (to Anchor-Hocking Glass Corp., Lancaster, Ohio). U. S. 2,341,126, Feb. 8. A cap-feeding unit comprising a magazine for supporting a stack of caps of circular outline.

PAPER TOWEL DISPENSER PACKAGE. C. A. Rost, Missoula, Mont. U. S. 2,341,119, Feb. 8. A paper towel dispenser package comprising a continuous paper strip reversely folded at regular intervals to provide a stack of superposed leaves.

STAMP ENVELOPE. W. G. Locke (to Dennison Mfg. Co., Framingham, Mass.). U. S. 2,341,634, Feb. 15. A stamp envelope comprising a front, an end flap and inner and outer rear flaps, the outer flap being cemented to the inner flap along a zone adjacent to the edge of the outer flap and having a slit adjacent to same.

CONTAINER & METHOD OF MAKING THE SAME. J. G. Mark & F. W. Lanigan (to Dewey & Almy Chemical Co., North Cambridge, Mass.). U. S. 2,341,845, Feb. 15. A container with seam area adapted to be adhesively joined to another seam area.

RECEPTACLE. J. Lipet, Providence, R. I. U. S. 2,341,940, Feb. 15. A receptacle comprising front and rear walls connected by an end portion, flaps or tabs extending from the sides of said front wall, foldable trapezoidal-shaped side walls.

PACKAGE FOR FLUIDS. L. de Kadt, Amsterdam, Netherlands (vested in Alien Property Custodian). U. S. 2,341,601, Feb. 15. Collapsible container for the portion-wise dispensing of liquid and viscous substances.

COLLAPSIBLE TUBE. F. A. Williams, Toronto, Ontario, Canada. U. S. 2,341,835, Feb. 15. A collapsible tube comprising a blank folded upon itself to form a tube body having a plurality of superposed plies.

CONTAINER CLOSURE. H. M. Kulman, Atlanta, Ga. U. S. 2,341,925, Feb. 15. A bottle closure having a metallic crown cap, a sealing and cushioning member within said cap comprising a disc made of peanut shells or hulls in highly compressed, ground form held together by a binder.

CIGARETTE PACKAGE OR THE LIKE. L. V. Bell, Wakefield, R. I. U. S. 2,342,240, Feb. 22. A rectangular container including an outer wrapper terminating at one end of the container, and inner and intermediate wrappers, respectively folded from the sides and ends of the top of the container to provide overlapping flaps.

CONTAINER & METHOD OF MANUFACTURE. G. A. Moore (to Shellmar Products Co., Mt. Vernon, Ohio). U. S. 2,342,158, Feb. 22. A container comprising a tubular portion composed of an inner sheet of transparent rubber hydrochloride and an outer sheet of paper.

BAG-EXPANDING MEANS. R. P. Allen (to Brooks Paper Co., St. Louis, Mo.). U. S. 2,342,324, Feb. 22. A flexible normally flat bag, and means for expanding the bag into open condition.

FOLDING BOX. D. Levkoff, Brooklyn, N. Y. U. S. 2,342,551, Feb. 22. A folding box comprising a single blank of cardboard which is cut, scored, folded and glued to provide a rectangular bottom wall, opposed upright side walls integral with the bottom opposed foldable side wall structure cooperating with the aforementioned side walls to complete the four sides of the box.

CONTAINER. R. H. VanSaun (to Container Corp. of America, Chicago, Ill.). U. S. 2,342,564, Feb. 22. A container with a cover panel adapted to close one of said wall panels along its upper edge.

BOTTLE WRAPPER. E. C. Potter, Chicago, Ill. (to Container Corp. of America). U. S. 2,342,600, Feb. 22. A new article of manufacture, a collapsed bottle wrapper capable of being expanded and placed over a bottle comprising a sheet of paperboard or the like cut and scored to provide a substantially rectangular lower portion.

COLLAPSIBLE CONTAINER, S. A. Aquino (to Hinde & Dauch Paper Co., Sandusky, Ohio). U. S. 2,342,623, Feb. 22. A container comprising at least six relatively flat side members fastened together in polygonal shape.

DISPENSING & SEALING STOPPER. H. N. Perelson, Huntington Park, Calif. U. S. 2,342,215, Feb. 22. A device to close and seal the mouth of a container, a cap, means on said body and cap for securing each to the other to form a sealed chamber therebetween.

WRAPPER FOR PACKAGES OF CIGARETTES & THE LIKE. R. C. Adams (to Marvellum Co., Holyoke, Mass.). U. S. 2,341,415, Feb. 8. A combination wrap for a package comprising inner and outer paper sheets, the inner sheet being adapted for completely enclosing the package with folded end portions, and outer wrapper being adapted to serve as label.

METHOD OF MAKING CARTONS. O. H. Hultin (to Pneumatic Scale Corp., Ltd., Quincy, Mass.). U. S. 2,342,198, Feb. 22. The method of making a side opening carton from a blank of material having four body panels.

METHOD OF AND MEANS FOR BINDING MATCH BOOK ASSEMBLIES. E. A. Allen (to the Diamond Match Co., New York, N. Y.). U. S. 2,342,236, Feb. 22. A method of binding a match book assembly comprising a flexible cover having a fold at one end and plurality of match cards having their base portions interposed between the body of the cover and the end of the fold.

WRAPPER FEED. W. Hoppe (to National Bread Wrapping Machine Co., Springfield, Mass.). U. S. 2,342,584, Feb. 22. A wrapping machine having means to move an article to cause the latter to be encircled by the leading portion of a wrapper web.

WATERPROOF ELASTIC THREAD AND FABRIC. S. W. Alderfer (to E. D. Andrews, one half) Akron, Ohio. U. S. 2,342,098, Feb. 22. An elastic water-resistant thread comprising a central core containing polyvinyl alcohol.

INDIVIDUAL PACKAGE. C. V. Nelson (to General Mills, Inc., a corp. of Delaware). U. S. 2,343,222, Feb. 29. A single use package and service receptacle of rectangular shape.

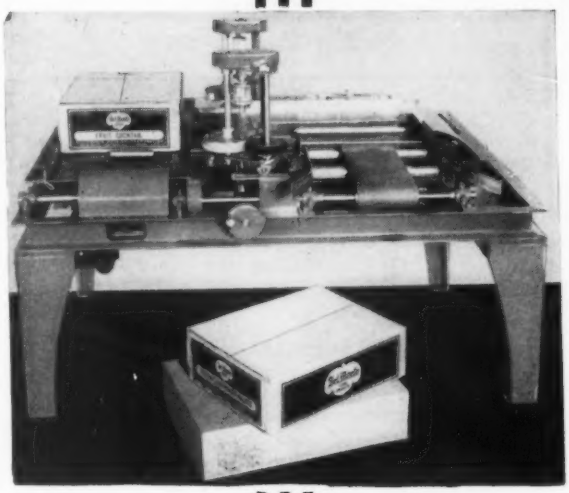
CONTINUOUS FORM ENVELOPE. J. Q. Sherman, Dayton, Ohio. U. S. 2,342,702, Feb. 29. A strip of series-connected detachable envelopes.

FOLDABLE BOX. M. Lester (Art Crayon Co., Inc., Brooklyn, N. Y.). U. S. 2,342,873, Feb. 29. A foldable box made of a single cut-out blank and having a display opening in the top and a cover hinged along one edge of said top.

DISPLAY BOX. S. Quartin, Brooklyn, N. Y., U. S. 2,342,893, Feb. 29. A display box with closure element having a top wall, a first rim depending from said wall.

AFTER THE WAR THE PRODUCTION WAR BEGINS!

You should be making plans now for the biggest production war of our time. If you are now packing essential products you should purchase your equipment with an eye on "After the War Use" of the equipment. If you cannot purchase now because of priorities, then you should enter your order for equipment now for delivery "If and When." In any event be prepared for the coming production war.

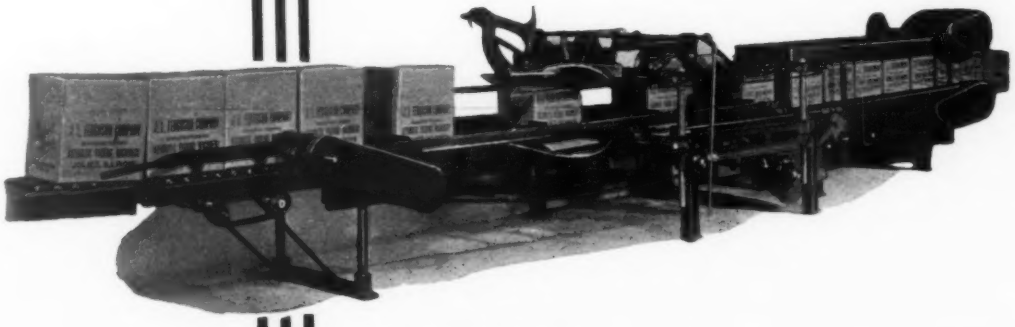


PACKOMATIC PAPER CASE IMPRINTING MACHINE

The operation of the Packomatic Case Printer is entirely automatic. Saves warehouse space, eliminates ues of stickers and saves excess handling.

It will print both ends of the case simultaneously, after the case is filled and sealed as you use them. Prints one or two colors, and from one to seven lines of type. Or it may be furnished to print both ends and both sides of the container.

No regular operator required. Adjustable for a wide range of case sizes. Operates up to 20 cases per minute.



PACKOMATIC MODEL "D" CASE SEALER WITH 10' COMPRESSION UNIT

The Model "D" will meet your case sealing requirements, and as all operations are automatic, it gives continuous low-cost performance. It will seal both top and bottom flaps simultaneously, or it may be equipped for sealing either top, or bottom, flaps only. Furnished with safety device, automatic glue skip and all newest developments.

It will efficiently handle any of the government specified "V" cases and the regular corrugated or fibre shipping containers, at any required speed, no regular operator required.

We can only supply equipment to essential industries who can furnish suitable priority. We are now accepting orders for postwar deliveries.

Complete detail will be furnished upon request.

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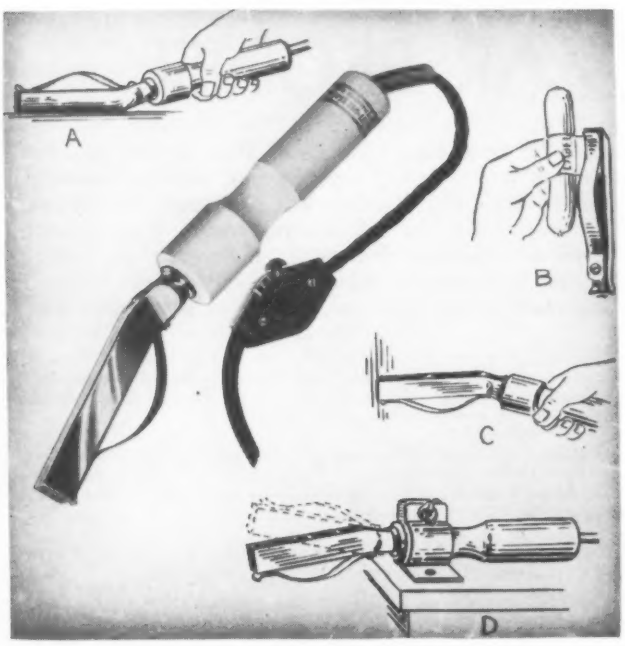
J. L. FERGUSON COMPANY, JOLIET, ILLINOIS

REPRESENTED IN ALL PRINCIPAL CITIES

Equipment and Materials



MULTI-USE HEAT SEALER

The "multi-use" sealer shown in the illustration has been added to the heat-sealing machine line of Pack-Rite Machines, Milwaukee, Wis. Originally developed to answer a specific need in the meat industry to seal pinch-type and overlapping sausage bands it, however, is adaptable to three other sealing stations as well. Sketch A shows the back of the sealer being whisked over tops of bags, pouches, packages, labels, etc. B shows how the materials may be slipped under the spring clip for pinch-type bands, ends of materials, tops of bags, envelopes, etc. C shows the heated tip being used for accurate spot-sealing. A table or wall clamp is obtainable as optional equipment (D).

Light in weight, the sealer is said to operate with the ease of a paint brush. Eight feet of cord make it possible to bring the machine to the package. It can be plugged into any 110 A.C. or D.C. light socket and is provided with a 3-heat switch and heavy-duty heating element for sealing at various temperatures. Available on suitable priorities.

ADHESIVE CEMENTS WOOD TO METAL

A rubberlike adhesive developed by the Goodyear Research Laboratory of The Goodyear Tire & Rubber Co., Akron, Ohio, makes it possible to cement a layer of plywood only one forty-eighth of an inch thick to a metal surface. The new Adhesive, named Pliobond, uses no critical materials and since the materials bonded in this manner can be bent into any shape without splitting the wood it should find uses in the packaging field.

NEW GLUE EXTENDER

Stein-Hall & Co., Inc., New York, has announced a new animal glue extender for paper box, tube winding and other work, which is described as satisfying the exacting requirements for this type of product. The extender is Gluex—and when used as recommended it replaces animal glue to the extent of 30% according to the manufacturers.

This company also claims that tapioca flour, formerly imported from the Netherland East Indies, is now available in ample quantities from South America and the West Indies. It is now supplying the paper box industry with gums made from Latin American tapioca flour. These all-tapioca gums include Tapoganth and Aquasol for stripping and Wonder 19 and Wonder M22 for tight wrap. Folders describing these products may be had from the company upon request.

PLASTIC AND RUBBER BLENDED INTO RESIN

The "wedding" of plasticized vinly chloride resins with certain butadiene type synthetic rubbers to effect vulcanizable blends which possess most of the best properties of each material has been announced by the chemical division of The B. F. Goodrich Co., Akron, Ohio. Compounds which the company is offering, subject to WPB allocation, are mixtures of its GEON vinyl resins and Hycar oil resistant synthetic rubber, in which butadiene and acrylonitrile are principal ingredients. Compositions made from these blends can be extruded, molded, calendered or spread. It is said that the properties possessed by the combination which are better than when the oil resistant rubber is used alone are extreme resistance to the effects of sunlight and ozone, increased resistance to benzene and similar aromatic solvents, both in swelling and cracking, low temperature flexibility combined with excellent heat resistance, improved flexing life, tear resistance, resilience and oven aging.

These combinations could be used in the packaging industry to produce grommets, seals and insulating and cushioning pads in service where they must resist solvents, chemicals, oils, greases, sunlight and heat.

THERMO-ELECTRIC GLUE HEATER

A cabinet type thermo-electric glue heater has been announced by Divine Bros. Co., Utica, N. Y., which is claimed to have the following advantages: Smooth-finish top which is easy to keep clean; faucet on cabinet side for easy emptying; wide doors which allow ready access to storage space for glue and water dippers; brush well which is easily removed for cleaning; cabinet set off floor for toe-room; racks for thermometer and glueometer; tamper-proof controls totally enclosed for protection against plant traffic; thermostatic control which keeps glue at uniform temperature. Literature sent upon request.

OVERSEAS PACKAGING MANUAL

Sherman Paper Products Corp., Newton Upper Falls, Mass., has published a timely manual titled "Speed Packing Manual for War Matériel," which gives information on Government specifications and packing methods for overseas shipment. Photographs are used to show how different types of products are wrapped and samples of Sherman V-line of papers are included. The company will send a manual to packers or shippers on receipt of a written request.

PLASTIC ROLLERS FOR OFFSET PRINTING

The newest use for "Lucite" methyl methacrylate resin is as a replacement for rubber as the material for making ink distributing rollers used in offset presses and duplicators. The Lumirol Co., New York, developed the (*Continued on page 154*)

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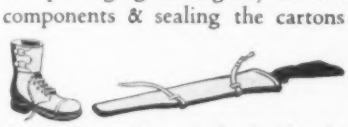
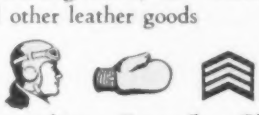
for packaging Emergency Ration components & sealing the cartons



for making Shoes, Rifle Scabbards, and other leather goods



for making Earmuffs, Gloves, Chevrons, etc.

for packaging Insecticides, Cleansers, and Canteen Water Purifiers

for sizing and finishing Mosquito Netting and Head Nets

for making Games and Sporting Goods

for labeling and sealing items of Subsistence (foods)

for sizing regulation and camouflage Uniform Fabrics

for sealing Cases; making and applying Packing List Envelopes

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for other applications too numerous to list here, important to the Quartermaster Corps in providing for the health, welfare and fighting efficiency of our army personnel.

No. 3 of a series

THE U. S. ARMY

QUARTERMASTER CORPS

. . . World's Best PROVIDER!

"BEST FED, best clothed, best equipped army in the world"...the pride of America is the achievement of the Quartermaster Corps.

So vast a responsibility is difficult for the average person to comprehend . . . millions of troops scattered all over the globe . . . thousands of miles of supply lines under constant enemy fire . . . forces shifting, requirements changing, the unexpected happening every day.

To anticipate the needs of the Army ground and air forces is alone a staggering job, but to overcome the difficulties and face the hazards of delivering the goods to far-flung battlefronts defies a tribute of words.

In an undertaking of such magnitude, the importance of adhesives and starch products, for purposes such as those shown at the left, might easily be overlooked . . . but nothing escapes the Quartermaster Corps. It is this close attention to detail that has won for the Corps the implicit faith of its dependent millions.

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Plants and People

W. R. Dixon

W. R. Dixon has been appointed assistant manager of The Dow Chemical Co.'s plastic engineering division, it was announced. Mr. Dixon will assume his new duties immediately. Robert C Harnden has been named head of the Dowicide division of the insecticides department and Theodore Reideburg has been brought from the Chicago office to the home office where he will work under J. Carl Dawson in the fumigants division.

Leland I. Doan, vice-president and general sales manager of Dow, has announced the opening of a new office in Detroit. Walter J. Truettner will head the new office.

George A. Mohlman, president of Package Machinery Co., announced recently that the first shipment of American-made packaging machinery to England will be made within the next 90 days. Two machines are being built for Nestle's Milk Products Ltd. for the packaging of dehydrated compressed milk and cheese blocks about the size of a yeast cake. Since the company is engaged in vital Navy work at the present time, the order will be sub-contracted.

Shellmar Products Co. and its more than 1,400 men and women employees were awarded the Army-Navy "E" at impressive ceremonies held on April 8. A peacetime maker of transparent packages for foods, ladies wear and such consumer goods, Shellmar is now making numerous packages for Army aviation, chemical warfare, QMC and ordnance branches, and for the Navy.

The company, started in 1924 at Milwaukee by B. W. Martin, now its president, was originally planned to print multi-color on a then comparatively new wrapping material, glassine. One of the men who became interested in the project, K. L. Shellaberger, became president, and Mr. Martin was appointed secretary. "Shellmar" was evolved from a combination of the two names. In 1934 it appeared advisable to bring all its manufacturing under one roof at Mt. Vernon, Ohio. Two years ago a West Coast plant was opened at Pasadena, Calif.

Obituary

Paul L. Houston

Paul L. Houston, president and director of The Marvellum Co., Holyoke, Mass., died on Friday evening, April 14. Coronary thrombosis was the cause of the death.

Mr. Houston was very well known in the paper field, having been associated with Marvellum since 1928. Previous to that he owned and operated the Centennial Mills in Kinderhook, N. Y. Mr. Houston learned the paper making business as a young man with the American Writing Paper Corp., and, later, worked in the Bureau of Standards from 1919 to 1923. He was born in Holyoke, October 28, 1890, and has made his home in Longmeadow for the past 16 years.

John C. Brooks, vice president and a director of the Monsanto Chemical Co. and general manager of its plastics division, died on April 26, at the age of 58, aboard a train from St. Louis to Springfield. Mr. Brooks entered the plastics industry in 1922.

C. G. Gress has been appointed sales manager of the Resinox department of the plastics division of Monsanto Chemical Co. Mr. Gress was formerly manager of the Detroit branch office of the division and Mr. Abbiati, general manager of sales, on announcing the appointment added that he will transfer to Springfield.

Edmund Hoffman, manager of personnel division, American Can Co., has announced plans for a postwar placement program for employees in the Armed Forces as well as those working in the company's war production subsidiaries. The program contemplates analyses of jobs from the standpoint of abilities and experiences required and a workable interview procedure to evaluate the potentialities of the individual in the light of his wartime activities. Particular attention will be paid to men who have suffered physical or mental injuries in the Armed Forces and every effort will be made to place these men in jobs.

J. Stogdell Stokes

J. Stogdell Stokes, president, Stokes & Smith Co., was awarded the Edward Longstreth Medal, "in consideration of his development of paper box manufacturing machinery and his leadership of his organization in the field." The ceremony took place April 19 at the Franklin Institute, Philadelphia.

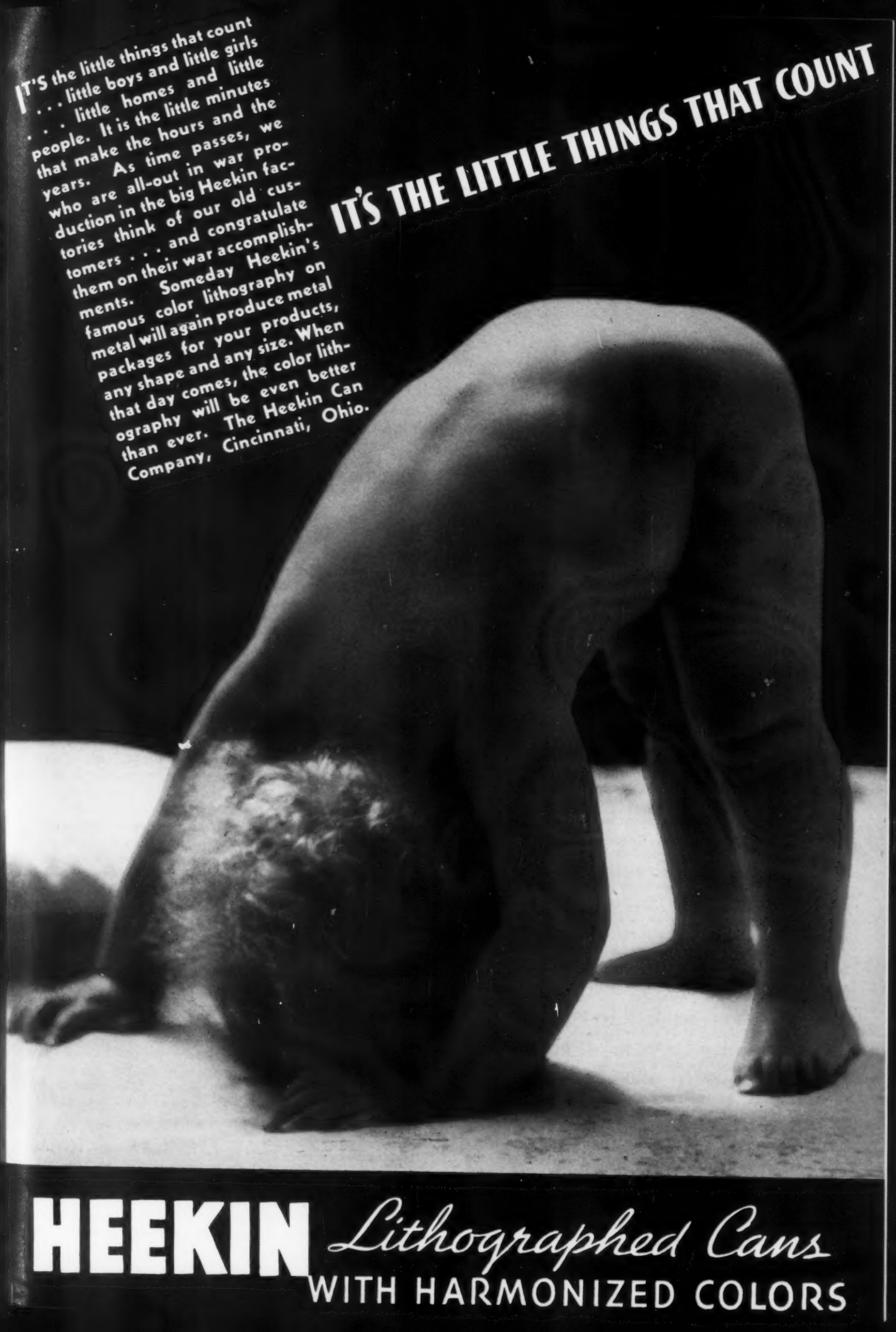
Mr. Stokes organized Stokes & Smith Co., and he and his associates hold over 70 patents improving paper box manufacturing machinery. Under Mr. Stokes' personal supervision the one-piece wrapping machine and several auxiliary machines were developed which are now used throughout the trade.

William Wallace Rowe, president, Cincinnati Industries, Inc., accepted the Army-Navy "E" award for the men and women employees of his company at appropriate ceremonies held March 31. Lieut. Col. Robert B. McKinley, who presented the "E" said in part: "Despite the fact that much of your equipment is either used or rebuilt machinery, you doubled your production in 1943 over 1942 and are continuing to show increase."

The pins were accepted for the men and women by Walter Lautenslager, vice-president of Local 210, Textile Workers Union, Mrs. Anna Danzinger, Mr. Van Nest and Mr. Bell. The employees of both the company's plants were present.

Twenty-seven Kimpak representatives of Kimberly-Clark Corp. were given a concentrated three day course in packaging and wrapping at Forest Products Laboratories recently. The first time this course has been given to a group of civilians from any one company, the first day covered the chemistry of wood and its species, the development of wood products and the manufacture of pulp and paper. The second and third days were devoted to the packaging of war products, according to specifications.

The Folding Paper Box Assn. recently elected the following to its new board of directors: R. A. Powers, Robertson Paper Box Co., Inc.; W. W. Fitzhugh, Wm. W. Fitzhugh, Inc.; J. G. Fleming, Fleming & Son, Inc.; R. C. Neff, Gebhart Folding Box Co.; R. R. Richardson, Chicago Carton Co.; E. P. Ruf, Wayne Paper Box & Printing Co.; G. M. Robertson, Flour City Paper Box Co.; E. B. Overstreet, National Paper Box Co.; R. S. Harris, Fort Orange Paper Co.; E. L. Brown, Brown & Bailey Co.; W. B. Dickerson, American Tri-State (*Continued on page 154*)


IT'S THE LITTLE THINGS THAT COUNT
IT'S the little things that count . . . little boys and little girls . . . little homes and little people. It is the little minutes that make the hours and the years. As time passes, we who are all-out in war production in the big Heekin factories think of our old customers . . . and congratulate them on their war accomplishments. Someday Heekin's famous color lithography on metal will again produce metal packages for your products, any shape and any size. When that day comes, the color lithography will be even better than ever. The Heekin Can Company, Cincinnati, Ohio.
HEEKIN Lithographed Cans
WITH HARMONIZED COLORS

For Your Information

"Financing War Contract Termination," was the title of a paper presented by George S. Dively, secretary-treasurer, Harris-Seybold-Potter Co. before the Fourth War Conference of Controllers, in New York recently. He estimated that cancellations at the end of the war may amount to 75 billion dollars, with resulting cancellation claims estimated at 15 billion. The deduction was presented that about 12 billion dollars of additional temporary cash funds must be available prior to, or about the time of "V"-Day if business reconversion is to be successful and satisfactory employment maintained.

Mr. Dively, who is chairman of the Committee on Termination Financing of the Controller's Institute of America, urged full recognition of the size and potency of the termination financing problem. He presented a practical approach to the entire problem of financing cancelled war contracts by recommending the "V" loan plan. He stated that, in his opinion, the present proposed Murray-George Contract Settlement Bill (S.1718) with slight modifications is sound, practical and adequate to answer the problem.

The Perfect Shipping Campaign being conducted by the Shippers Advisory Boards throughout the United States has the active support of allied organizations including the Office of Defense Transportation. Col. J. Monroe Johnson, newly appointed director of the office wrote in a letter recently to E. A. Jack, general chairman of the committee directing the campaign:

"The Perfect Shipping Campaign now in progress is essentially a fight against waste, for loss of any shipment through careless handling or improper loading is a waste, not only of time, labor and materials, but of transportation as well. . . . Perfect shipping will help win the war."

"Aluminum Imagineering Notebook," is the title of a booklet published by Aluminum Co. of America to acquaint industry with "12 economic advantages of Aluminum." The company defines imagineering "as the art of letting your imagination soar and then engineering it down to earth." As a stimulator of this mental process this book presents the economic advantages of aluminum and illustrates numerous examples of things which have been imagineered into aluminum actualities.

"Guide to Cost Study in Corporation Postwar Planning," the fourth of a series of postwar planning guides issued by the National Assn. of Mfgrs. is now ready for distribution. Earlier titles were "Guide to Internal Organization," "Guide to Postwar Sales Planning" and "Guide to Postwar Product Development." The last item in the series which will appear soon will be "Guide to Postwar Corporate Financial Planning." A letter to NAM, 14 W. 49th St., New York, will bring any or all of them except the fifth.

Reclamation devices designed by the American Can Co. are reclaiming canteens damaged by the hazards of war at the rate of 1,000 per day. Installed in the Jersey City Quartermaster Repair Sub-Depot in New York City the ingenuous machinery uses the hydraulic pressure principle. According to V. T. Grover, engineer, who had charge of the project, some of the problems which had to be answered before the work could be done were restoring the canteens to their former size and shape, removing dents, straightening the necks and repairing tops and chains. Officers of the Depot revealed that this and other reclamation which is going on is saving taxpayers $1,500,000 a month in the New York City installation alone.

"For Father. . .the Skipper of the Family," will be the theme of Shulton, Inc., sixth annual window display contest on Early American Old Spice Men's Toiletries for Father's Day. The prizes to dealers this year will amount to $2,050 in War Bonds. Free dealer help is offered which includes counter cards, streamer banner for window use, a cooperative newspaper mat sheet and a full color three-dimensional counter display.

A manual on conservation of pressure-sensitive industrial adhesive tapes has been printed and distributed by Bauer & Black, division of The Kendall Co., Chicago. In it are suggestions for storing, handling and using tapes in order to effect the greatest economies and to conserve supplies of this critical material. The material has been arranged departmentally so that various users of tape can learn, with a minimum of reading, how to do their special jobs of conservation. Individual sheets are complete in themselves for posting on a bulletin board. Copies may be had by writing on company letterhead to Bauer & Black, Industrial Tape Division, 2500 S. Dearborn St., Chicago 16, Illinois.

"How American Business Can Conserve More Paper in 1944," is the title of a 32-page booklet by the Assn. of National Advertisers, Inc., an organization representing more than 370 national advertisers. Concerning packaging, the report recommends that manufacturers eliminate, where possible, double packaging (a jar or a tube in a carton), inner wrappings, protective sleeves in cartons, and suggests a reduction in the number of items or sizes in a manufacturer's line, wherever practicable, and a reduction in voluntary sampling of products. In addition manufacturers are urged to avoid using two identical labels on the same item and to use spot labels instead of wrap-arounds whenever and wherever possible.

The actual peacetime outlook covering 286 vital peacetime plans and projects now underway in 56 major American industries has been summarized in "Postwar Planning Now," the latest transition study made by the Journal of Commerce. All the material for this second edition was obtained from data furnished by key industrialists, Government and trade associations. Copies may be had for 25 cents each from the N. Y. Journal of Commerce, 63 Park Row, New York 15.

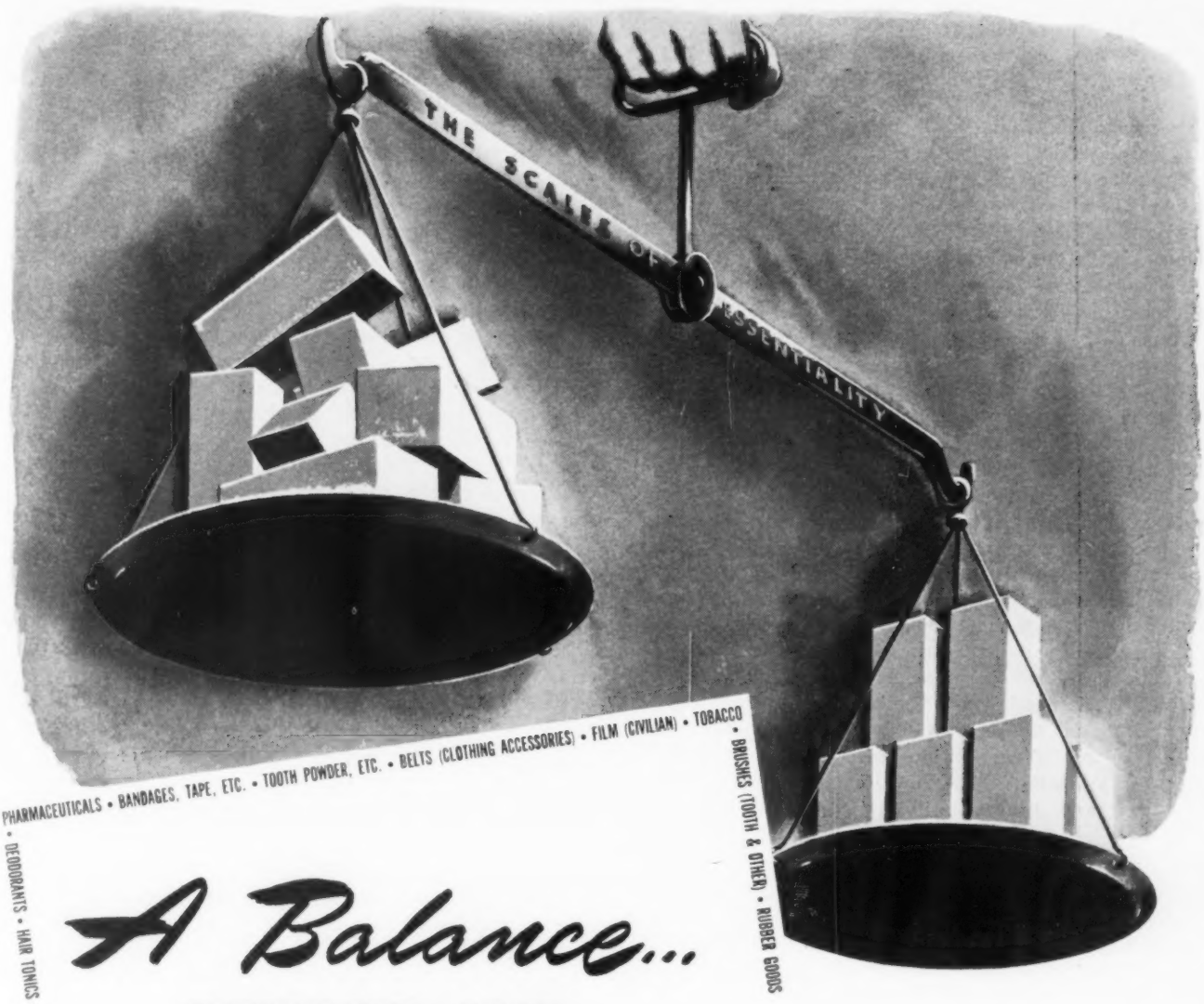
The possibilities for postwar air transportation of fresh fruits, vegetables and other perishables were stressed by W. A. Patterson, president, United Air Lines, in connection with a forum on the subject recently. After commenting on a study made by Dr. Spencer A. Larsen of Wayne University, Mr. Patterson said:

"We may find it necessary to assist the development of perishable traffic by taking a loss for a year or two if thereby we can develop sufficient volume to justify its continuance at rates which have some prospect of becoming economically sound.

"We can only ask that the fruit and vegetable industry bear with us until such time as war conditions make it possible for us to convert our whole-hearted interest into actual transportation."

The Adhesive Manufacturers Assn. of America at its annual meeting in Chicago recently, indicated a very optimistic viewpoint on the part of these manufacturers as to the post-war period. James T. Bishop, formerly of WPB, was high in his praise of the work that the industry has done to solve some of the most difficult wartime requirements.

Using exactly the same bottle for two different products has been ruled misbranding by a jury in U. S. District Court, Valdosta, Ga. The decision was that a product of Monticello Drug Co., Jacksonville, made to relieve certain cold symptoms so closely resembled the same company's antimalarial liquid as to confuse the consumer. No charge was made that any (*Continued on page 154*)



PHARMACEUTICALS • BANDAGES, TAPE, ETC. • TOOTH POWDER, ETC. • BELTS (CLOTHING ACCESSORIES) • FILM (CIVILIAN) • TOBACCO • BRUSHES (TOOTH & OTHER) • RUBBER GOODS • DEODORANTS • HAIR TONICS • RAZOR BLADES • BOUILLON CUBES • PREPARED FOODS • CANDY • COCOA • GUM • COFFEE • TEA • DRUGS • PEANUTS • VITAMINS • COSMETICS

A Balance...

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Fairness in distribution—plentiful reserves for Government needs — adequate essential civilian supplies—we are committed to seeing the War through on this basis.

Such a plan for paperboard needs cooperation to succeed. So let's do a constructive job—your company and every company—from now to the end.

Where the choice is quality boxboard—make it Ridgelo as you have in the past and will in the future—

DO YOUR PART IN THE WASTE PAPER DRIVE

Ridgelo
CLAY COATED
BOXBOARDS
MADE AT RIDGEFIELD, N. J.
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Representatives: Bradner Smith and Company and Mac Sim Bar Paper Company, Chicago • H. B. Royce, Detroit
Gordon Murphy and Norman A. Buist, Los Angeles • A. E. Kellogg, St. Louis • Philip Rudolph & Son, Inc., Philadelphia

Military packaging

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Another type of wrap is illustrated in the packaging of the "Jeep Purolator." The Purolator and its round carton are placed on the conveyor with C wrapping paper at intervals of 24 in. The Purolator is tightly wrapped in the C paper. It is then dipped in two sealing wax operations as described above. Replaced in the carton, on which an identifying gummed label is affixed, the part is ready for shipment.

A third type of wrapping is that used on connecting rods. The connecting rod, well coated with rust-preventive oil, is placed on the conveyor on two pieces of C paper of appropriate size, one piece at each end of the rod where the precision surfaces must be thoroughly protected. A labeled carton accompanies the unit down the line while the ends of each rod are tightly wrapped in the protective paper. Each end of the rod is then dipped in wax and allowed to dry before it is placed in the carton ready for shipment.

The parts handled on the line range from nuts and bolts, weighing a fraction of an ounce, to transmission gear assemblies which weigh a little over 7 lbs. each.

At the end of the belts the packaged parts are placed aboard the conveyor trucks as illustrated and moved to storage bins pending shipment.

Credits: Automatic dipping system by Mechanical Handling Systems, Inc., Detroit, Mich.

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What to know about asphalt

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Technical Assn. of the Pulp and Paper Industry.

Encyclopedia of Packaging

. . . with the accent on reconversion!

"If there's any single reference work that should be given a favored spot on the shelves of every merchandiser's and manufacturer's library that volume should be the PACKAGING CATALOG . . . . Answers dozens of problems that every war-time manufacturer must face . . . answers that aren't ordinarily easy to find."

—OFFICE APPLIANCES

"The Packaging Catalog . . . gives the basic facts about every type of material, the permanent truths upon which packaging executives rely in handling their packaging operations."

—SALES-LITHOGRAM

The forthcoming 1944 PACKAGING CATALOG, to be published in the near future, will offer a new note in packaging: reconversion. Based on war-time knowledge and experience, this volume will project packaging into the peace.

The great PACKAGING CATALOG is the work of no one man, the product of no single brain. It represents the distilled essence of experience of literally scores of experts in private industry and in Government departments.

In its 15 sections the CATALOG will cover packaging materials now on the market, including war-time developments, the new war packages and the standard containers of both war and peace from tiny glass vials to huge metal drums; packaging machinery, packaging techniques; packaging law and related subjects. Its special Buyers' Directory furnishes the authoritative guide to more than 200 goods and services.

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•
BAGS—ENVELOPES—POUCHES
•
GLASS—POTTERY—CLOSURE
•
CANS & TUBES

LABELS—SEALS—TAGS—MARKING PIECES
•
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1944
PACKAGING CATALOG

122 EAST 42nd STREET • NEW YORK 17, N. Y.

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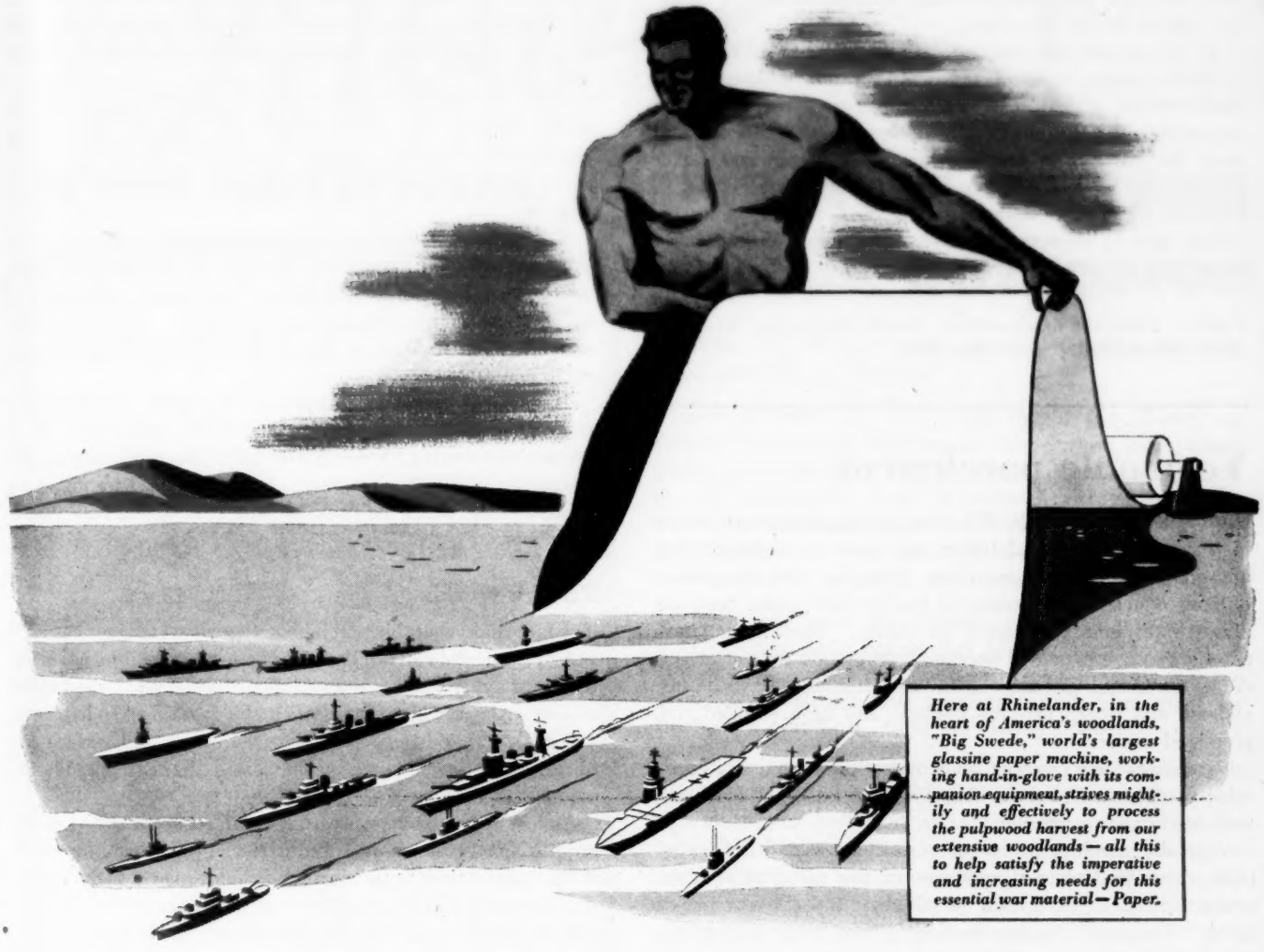
pages 49-50 - Miscw.

AN AMERICAN INSTITUTION WORKING WITH AND FOR AMERICA



Here at Rhinelander, in the heart of America's woodlands, "Big Swede," world's largest glassine paper machine, working hand-in-glove with its companion equipment, strives mightily and effectively to process the pulpwood harvest from our extensive woodlands — all this to help satisfy the imperative and increasing needs for this essential war material — Paper.

PAPER IS PART OF AMERICA'S "TASK FORCE"

Paper ranks with steel, rubber and petroleum as a major fighting element in this most vicious of all world struggles. One of paper's important "tasks" is in protecting America's greatest weapon — Food. If conserved, our food-stuffs will shorten the war, prevent the sacrifice of countless lives, and help the liberated countries to help themselves. Watch waste! America's population wastes annually almost enough to feed the larger part of our armed and war production forces abroad and at home. Obviously in this connection, protective packaging of foods in transport and storage is imperative in these critical times. Shrinkage, spoilage and contamination can be and are being held in check with protective papers such as are made at Rhinelander paper mills. In addition, fighting materiél in wide variety such as protective wrappings for ordnance items, plane, tank and tractor parts, guns and ammunition, are also being safeguarded with Rhinelander's papers. If our products were ever important in peace times, they are vital today.

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PROTECTIVE PACKAGING
Papers

FROM THE BEST THAT'S MADE TO THE CHEAPEST THAT'S GOOD

Genuine Greaseproof Coffee Bag Papers | Confectionery Papers Cereal Wrapping Papers | Laminated Greaseproof Papers Lard and Shortening Liners | Bakery Product Wraps, Cracker Box Liners | Greaseproof Innerwraps Wax Laminated Glassine | Opaque Label & Bag Glassine Packing Industry Wrappings

RHINELANDER PAPER COMPANY • MILLS AT RHINELANDER, WISCONSIN, U. S. A.

Candy letter

(*Continued from page 97*) product because it pleases the public, is a prestige-builder and brings store traffic. For these reasons, the stores are actively promoting the package. Some, in fact, appear to be spending more on advertising than they can hope to realize with the limited amount of stocks that can be supplied to them.

At the present time, an assembly line of 170 workers, most of them women, is employed at the job of producing the candy letters. The boxes are filled as they travel along a conveyor belt. An electrically operated machine folds and seals the cartons in one operation. A larger and faster sealing device, specially designed for the firm, which is expected to do the work of seven girls, is now being installed and is expected to boost production considerably above the present level of 200 gross a day.

Credits: Outer and inner cartons, Joseph Zuckerman, Inc., New York; design, R.A.F. Rice, New York.

Vegetable parchment

(*Continued from page 87*) wrapper protection where its high wet strength, insolubility, resistance to disintegration and greaseproofness are essential. Coupled with the virtues of being odorless and tasteless, it has for many years been the almost indispensable wrapper for butter. These same characteristics have provided necessary protection for packaging of oleo margarine lard and vegetable shortening; for wrapping of fresh and frozen fish and poultry, and fresh, smoked and processed meats.

Vegetables have provided wide opportunity for use of vegetable parchment as bands, wrapping and lining of iced and un-iced shipping containers.

Vegetable parchment has been combined with other materials where the inherent qualities of the material provide characteristics necessary for satisfactory and efficient packaging. Frequently, it has been employed as a supporting membrane for transparent films, foil and the like.

Vegetable parchment has been laminated to transparent cellulose films for the wrapping of cream cheese. Satisfactory performance is reported.

Laminated to itself, or to transparent cellulose films, it has occasionally been employed for lining the walls of fibreboard food containers.

A special type is used as gasket material on fibre oil containers. Combined with glassine, vegetable parchment was fabricated into Ration C packages.

Special types have been manufactured for use in the rubber industry as separators for unvulcanized or semi-vulcanized rubber, and for use on tire repair stocks, etc.

A special type of vegetable parchment has been in use for several years in the wool spinning industry, where it has proved itself valuable in the manufacture of wool yarns, replacing materials that formerly were imported and at the outbreak of the war became unavailable.

For more than 59 years the biggest job of vegetable parchment has been packaging and protecting foods. War needs resulted in a new appreciation of what this remarkable paper can do and today it has many important war assignments. Most of them cannot be talked about, but here are a few examples: In the manufacture of gas masks, in the manufacture of methyl methacrylate, mold liners, Ration C wrappers, map tracing papers, ointment box liners, snuff box liners, special photographic purposes, liners for coffee bags, bulk shortening package liners, liners for motor oil containers, and as a dialyzing membrane.

Because vegetable parchment is both insoluble and grease resisting, it is readily used as a liner for foods packed in cans. These liners keep the contents from touching the metal and prevent discoloration, thereby adding considerably to the sales appeal.

With the advent of the cold storage locker plant, a perfected type of this material has filled another need. The modern locker plant is interested in maintaining a high quality of service and as long a preservation of food and flavor as possible.

The medical profession uses vegetable parchment for wrapping surgical instruments and dressings to be sterilized in the autoclave. It takes scorching-hot live steam. It does not cause stain on the articles enclosed in it. Also, it can be easily marked to identify the article in the package without extra equipment.

In surgical operations sterilized vegetable parchment is used to protect tissues from injury from retractors. As a protective covering for wet dressings, it is an economical substitute for oiled silk or rubber. It is often used by nurses to make an emergency ice pack because it is strong and pliable when wet.

Future trends

The fact that vegetable parchment is grease resisting, has high wet strength and will not disintegrate even on boiling has made it a vital aid in solving many difficult problems. Used alone as a wrapper, the material meets many exacting requirements, and with the addition of special treatments and surface applications, it can do jobs never before thought possible for paper.

Almost every day new uses and applications of this versatile product are being found. Industrial applications, far afield of the normal food protection job it has done for many years, are increasing and as availability of pulps becomes more normal, the family group of 179 types is expected to grow.

Pillsbury redesigns

(*Continued from page 69*) are welcome in this period when shopping is time-consuming for all concerned.

Another thing to be considered is that the changeover is practically painless just now. The manufacturers and wholesalers will not be plagued by returns; grocers will not be tempted to try to return stock with the old labels because their competitors may be carrying the newly packaged merchandise. In this era of short stocks, nothing stays overlong on the grocers' shelves, so the old packages will be absorbed normally and the new ones will filter through automatically, without undue disturbance to anyone.

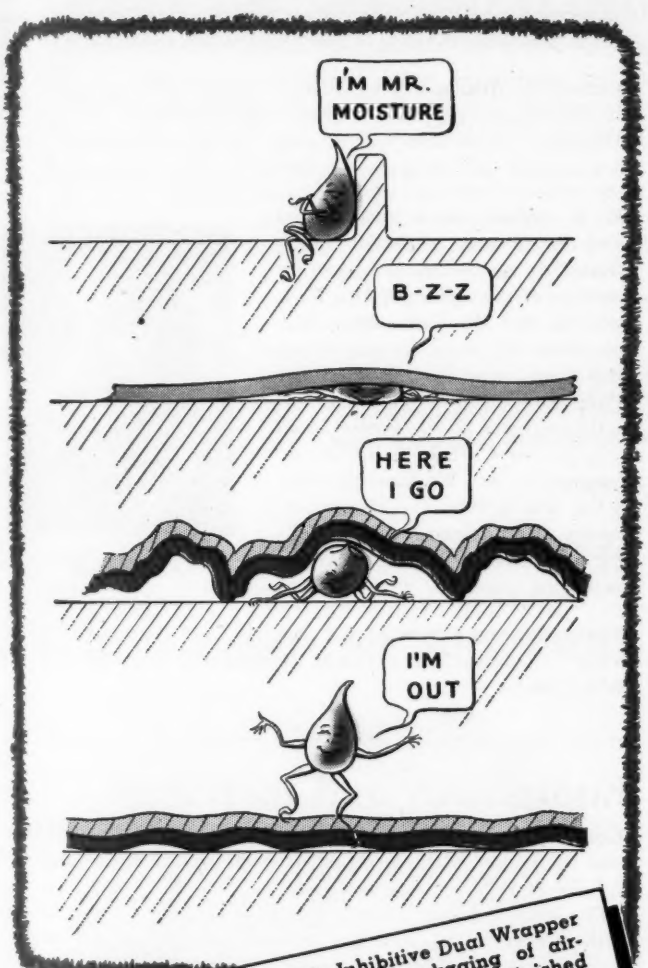
As the war draws to a close, we can expect many large companies to undertake the redesign of their packages. The Pillsbury project, which is, in a sense, a trail-blazer, is of particular interest just now.

Credits: Designs by Jim Nash, New York; labels by American Colortype Co., Chicago.

Induwrap*

GIVES ARTIFICIAL RESPIRATION TO STEEL

..kills corrosion



INDUWRAP — This Inhibitive Dual Wrapper has revolutionized the packaging of airplane engine and other highly finished metal parts shipped to points throughout the world.

WRITE TODAY for sample and free descriptive folder, "The Touch of Death to Steel" — Folder (MP). Anticipate your peacetime needs when ANGIER INDUWRAP will be generally available to industry.

Who would have thought it — highly finished steel needing to breathe!

But it does. At any rate, that's the theory of Angier Protective Engineers and other competent packing authorities. Experiments have found a way to let packaged steel breathe, and many tests have demonstrated that breathing, as permitted by INDUWRAP, is an effective first-aid against the contamination of steel by corrosion.

Let's see how Mr. Moisture makes it work:

Under a tight-fitting flat wrap, Mr. Moisture is squashed against the steel surface — trapped there on a spot where the protective oil film may be broken. Corrosion starts its deadly work.

But note how different it is when the wrapper is creped — when it S-T-R-E-T-C-H-E-S. In the little air channels between points where it touches the steel, Mr. Moisture finds elbow room to wiggle out — evaporate from his prison, leaving the broken "spot" in the oil film protected by the A-25 infusing compound in the INDUWRAP wrapper.

"What is the source of this moisture?" you may ask. Well, it may fight its way out of pores in the metal, or come from solvents in the oil compound with which the metal is slushed. It may make its unwelcome appearance from many places, and it does. INDUWRAP — creped and with its corrosion inhibitive metal-contacting surface — is safe insurance against this trouble-maker.

Then there are other decided advantages in using a creped, resilient wrapper. It is flexible and conforms neatly to the protruding parts of odd-shaped articles, without puncturing or tearing. And it helps to cushion the shocks of travel.

*REG. U. S. PAT. OFF.

ANGIER CORPORATION

CORROSION PREVENTIVE AND WATERPROOF PAPERS

FRAMINGHAM, MASSACHUSETTS

For your information

(*Continued from page 146*) misleading statements were made in labelling or that any of the lettering was inconspicuous. The sole issue was similarity of appearance.

"Lady, Will You Give a Lift?" a manual to train women in the operation of power industrial trucks has been reissued by The Elwell-Parker Electric Co., Cleveland, Ohio. The manual explains to the new operator the importance of her job and tells her in non-technical language how to operate her truck and to take care of it. This manual is said to cut down the time required to teach women to operate trucks from four or five days to one. With more and more men being urged into war production and going off to war Elwell-Parker has found that many industrial executives were interested in replacing men with women on their industrial trucks.

As a result of the continued control of the Nazi submarine menace a decision has been made to suspend the extensive program developed for the manufacture of steel cases for machine gun ammunition. This has lead to the dismantling of the cartridge case cup manufacturing plant set up by the American Can Co., in Chicago. The equipment is being stored by the Army.

Plants and people

(*Continued from page 144*) Paper Box Co.; H. L. Dibble, Carton Service Inc.; B. M. Richardson, Richardson Taylor Globe Corp.; R. L. Snideman, American Coating Mills, Inc.; E. F. Gereke, Gereke-Allen Carton Co.; W. H. Kewell, Los Angeles Paper Box Factory; W. D. Lynch, National Folding Box Co.; N. F. Greenway, Robert Gair Co., Inc.; H. C. Stevenson, Rochester Folding Box Co.; R. F. Burroughs, Trenton Folding Box Co.; Colin Gardner, Gardner-Richardson Co.; J. P. Thomas, U. S. Printing & Lithograph Co.; M. G. Fessenden, Ace Carton Corp.; A. G. Ballenger, Morris Paper Mills; P. A. Schilling, Waldorf Paper Products Co.; W. D. Lane, Eggerss O'Flyng Co.; W. E. Hardie, Imperial Box Co.; T. S. Duncanson, F. N. Burt Co., Inc.; R. A. Ross, Hummel & Downing Co.; S. L. Wellhouse, National Paper Co.; Charles Ruble, Standard Paper Box Corp.; Harry J. Byrne, Michigan Carton Co.; R. E. Rutledge, Sutherland Paper Co.; Leon Densen, Densen-Banner Co.; J. J. Bossard, Container Corp of Amercia; and W. F. Daley, New Haven Pulp & Board Co.

The executive committee consists of: W. W. Fitzhugh, Colin Gardner, R. L. Snideman, M. G. Fessenden, Ermin P. Ruf, N. F. Greenway and R. F. Burroughs.

Francis J. Holland, president, Little & Co., Inc., was elected president of the National Dehydrators Assn. during the Food Processors conference in Chicago recently.

J. R. Kimberly, vice-president in charge of sales of Kimberly-Clark Corp., announced that C. F. Jenkins becomes general sales manager, and R. B. Sawtell becomes sales manager of creped wadding products.

E. C. Bull, general manager of Wright's Automatic Machinery Co., has been elected a vice-president and director; Controller R. Y. Cooke, Jr., has been named assistant secretary and is also a director while the other officers and directors are T. D. Wright, president; R. H. Wright II, vice-president and treasurer; and A. L. Cox, secretary.

The firm of Norman Bel Geddes & Co., a co-partnership consisting of Norman Bel Geddes, Roger L. Nowland, Peter Schladermundt and Katherine B. Gray, and doing business at 50 Rockefeller Plaza was dissolved March 15, 1944. After this date Norman Bel Geddes has been conducting business individually under the firm name of Norman Bel Geddes & Co., at the same address. Announcement will be made in the future of the name under which the Messrs. Nowland and Schladermundt and Miss Gray will conduct business.

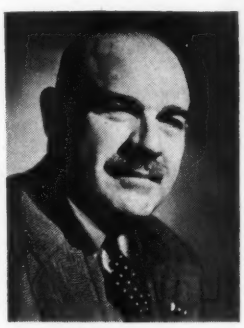
Officers and employees of Arkell Safety Bag Co., received the Army-Navy "E" recently for outstanding production of war material.

Herbert Kaufmann, advertising manager of General Printing Ink Corp., has been commissioned a lieutenant, junior grade, in the Navy, and is now stationed in the Publications Division of the Navy Administrative Office in Washington.

R. G. Peck, Jr., vice-president and assistant general manager of the Aridor Co., is back in Chicago after having served in an advisory capacity with the Glass Container and Closure Section of the Container Division of WPB for the past seven months.

Richard A. Hoskin will be retained as resident manager of the Hoskin Paper Co., whose operation has been taken over by the Marathon Paper Mills Co., of which the Menasha Products Co., is a division, on a long-term lease with option to purchase.

F. J. Solon, vice-president and director of sales of Owens-Illinois Glass Co., has become a temporary member of the staff of WPB. He is working with Harold Boeschenstein, president of Owens-Corning Fiberglas Corp., who is director of the Production Controls Bureau and acting director of the Forest Products Bureau of WPB. In his specific assignment at Washington, Mr. Solon will devote his efforts primarily to container problems, calling upon overall knowledge of the packaging industry.



F. J. Solon

Dewey & Almy Chemical Co. has received its second Army-Navy "E" award. This means the addition of a white star to their pennant.

Equipment and materials

(*Continued from page 142*) distributor and is fabricating them from the plastic which is supplied by the plastic department of E. I. Du Pont de Nemours & Co., Inc.

The fabricator claims that a precision machining and grinding method assures the accurate dimensions requisite for proper performance. The material being a clear transparent plastic assures that the operator in cleaning will not overlook ink which might remain on the roller and harden. Moreover, the rollers may be used with "clean-up" attachments.

PAPER AND FRISKET CEMENT

In announcing the development of a new non-rubber cement the So-Lo Works, Inc., Loveland, Ohio, claims that its product is "transparent, will not discolor paper and is easily rubbed off, even when wet. It has the adhesive qualities of rubber." Packaged in quart and gallon jars, it is used like rubber cement and is available in quantities without priorities.

PRESSURE SEALING TAPES

A complete line of pressure sealing tapes, which are said to be weatherproof and unaffected by extreme temperatures, sea air, salt spray, chemical fumes or war gases are being distributed nationally by International Plastic Corp., Morristown, N. J.

PRODUCTION JUMPS

WHEN A Capem GOES ON THE BOTTLING LINE

Packaging of foods, drugs, cosmetics—in fact anything sealed with a screw cap closure—shows sharp increases in production when a Consolidated capping machine goes on the line.

CAPEM is an automatic, high speed capper. It is available in 1, 3 and 4 spindle models and is easily fitted into any bottling line. Speeds range from 2000 to 7500 containers per hour. Write for information on this sure way to increase production with less help.

ARMY E NAVY

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO, N. Y.

Many Great Nations Are Already Planning Post War Programs
as are also many business men—ARE YOU?

THE BECK SHEETER

After "Unconditional Surrender" is a fact of history, you will want the highest productive Sheeting equipment obtainable, to meet competition. Your choice may be from the hi-speed Electric Eye machines for "spot sheeting" down to the more simple standard machines for plain work.

Write us to-day for to-morrow.

CHARLES BECK MACHINE CO.
13th & Callowhill Streets Philadelphia, Pa.

DISCOVER

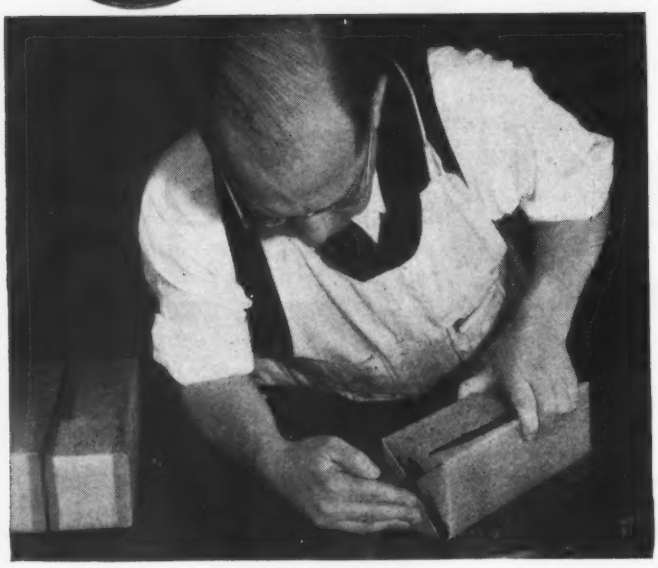
THE RECOGNIZED DURABILITY
of "ON-TO-STA"
GUMMED TAPES
AND GAIN EXTRA SHIPPING PROTECTION FOR YOUR PACKAGES

ATLANTIC GUMMED PAPER CORP.
PLANT & MAIN OFFICE: ONE MAIN ST., BROOKLYN 1, N. Y.

Branch Offices: Philadelphia, Pittsburgh, Chicago, Boston, Buffalo, Atlanta, Los Angeles, Havana.

3-M ADHESIVES

... for export packaging



THIS LITTLE PACKAGE WILL GO A LONG WAY

Besides providing a dependable seal against moisture and extremes of temperature, the strong bonding qualities of 3-M Adhesives fasten small packages so securely that no other tying or binding is needed. Brushed on, or sprayed on for speed of application, the result is a compact, waterproof package which the 3-M Adhesive will hold intact until arrival at destination.

• *Our new booklet on sealing export shipments shows by picture and text how to protect goods against moisture and extremes of temperature while in transit. If you'd like a copy use the coupon below.*

MINNESOTA MINING AND MANUFACTURING CO.

MIRS 3-M PRODUCTS

GENERAL OFFICES: SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES
ADHESIVE DIVISION: DETROIT 2, MICH.

Manufacturers of "SCOTCH" Brand Tapes ... 3-M Abrasives ... 3-M Floor Waxes and Sealer ... 3-M Adhesives ... Scotchlite Reflective Material ... 3-M Cutting and Finishing Compounds ... 3-M Lapping and Grinding Compounds ... Colorquartz Roofing Granules ... Spherekote Tympan Cover.

Minnesota Mining & Manufacturing Company MPA-544
900 Fauquier Avenue, Saint Paul 6, Minnesota

Yes, I'd like a copy of the new book on sealing export packages. ★

Name _____

Address _____

City _____ Zone ____ State ____

Meeting QMC Specs

(*Continued from page 93*) to any machine so that the drying rate will meet the requirements of the individual canner. There is said to be no objectionable residual odor at the time of packing finished cans. This enamel is covered by Quartermaster Specification CQD-200-A.

Pro-coating has become so necessary, especially for South Pacific use, that a shipment of several thousand cases of pineapple is to be brought from the cannery in Hawaii to a West Coast plant, coated and reshipped to South Pacific points. It is expected that one of the large coating installations will eventually be made in Hawaii.

A definite understanding with the Quartermaster field buyer as to the consignee of each order of canned foods is absolutely necessary, since at present the Navy, Lend-Lease, WFA, UNRRA and other agencies—for all of whom the Quartermaster does some purchasing—not only do not require but will not accept cans without labels. The Army will, however, now accept marked but unlabeled cans for its own domestic as well as export use.

Identity of product is the only marking required, no grade statement of any description is desired. Most packers using printers, are, however, applying their tradenames and trademarks; some, in addition to the name of the product, use only a code number to show where and when can was packed.

Quartermaster specifications require that uncoated cans be cleaned prior to coating, coating must be uniform and so applied that it will air-dry in three to five minutes at room temperature. The coatings must be approved by the Quartermaster prior to application, consequently, the manufacturer of the coating material must submit sample cans which he has coated on production-type equipment, along with tested cans and a laboratory report indicating that the cans he coated are better than, or at least equal to, the specifications. Benzene, lead or chromate pigments are barred. The coated cans must be smooth, free of blisters, pebbling or pin-holing, although slight orange-peel appearance is permitted. Marring or slight fracture of the coated surface, which might be caused in conveying of cans through coating and drying tunnels, is tolerated to 10%.

Some paint manufacturers already have qualified as to the coating material and are on the approved list.

The additional materials and labor involved in complying with the can-coating requirements will be paid for by the procurements agencies; the contract will be figured so as to permit the canner to recover his extra costs.

Credits: Rotary printer, Rotary Imprinter, Inc., New York.

Soap cartons—

(*Continued from page 103*) in the otherwise satisfactory group of soap packages.

In conclusion, we may have confidence that with the coming of peace there will be a renaissance of the trend toward beauty in all fields—in packaging, as well as in industrial design. This will be through basically sound art and its efficient, functional application, rather than through any surface daubing on of unmotivated ornament that, in the past, has gone under the description of "artistic" or—happily discredited phrase—"modernistic." Certainly we look forward eagerly to the postwar period with its promise of unlimited opportunity and incentive to the best in graphic as well as structural design, against a background of these war years of discipline and new "know-how."

Be ahead of competition with your

PACKAGE

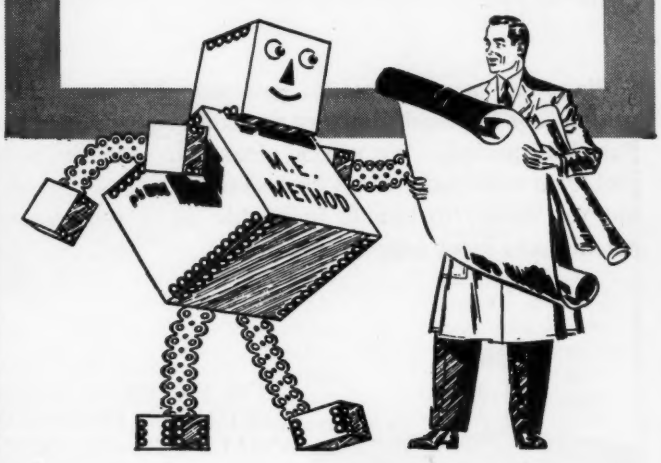
YOUR *Postwar* PLANS

Your postwar plan will require colorful glass containers for maximum sales appeal as well as protection from sunlight. Our duplex (two-coat) COLOROID process adds new life, better brilliance and sales appeal to any good product marketed in volume production. The success of COLOROID customers is just another indication of the superlative value of the over-all color. Although the war is not yet won, this is a good time to make your plans so you'll know what you can do as soon as materials are released.

COLOROID Corporation

6911 Lorain Avenue • Cleveland 2, Ohio

PACKAGING IS *MANAGEMENT'S* JOB



Many a "Big Shot"—otherwise a top-flight executive—slips a cog when it comes to packaging and the closely related operations of Material Handling and Inventory Control.

Perhaps the most frequent reason is that he does not realize their importance—that they deserve his personal attention and expert judgment.

The theory and practice of Packaging, Material Handling and Inventory Control, as applied by Metal Edge packaging engineers, has undergone an extraordinarily vigorous development in the past few years.

Are you fully informed?

METAL EDGE

NATIONAL METAL EDGE BOX CO.

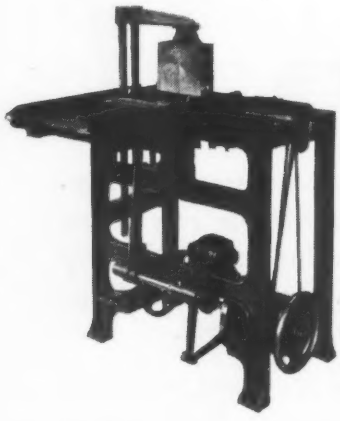
334 N. 12th St., Philadelphia 7, Pa.

METAL EDGE—ENGINEERED TO THE NEED

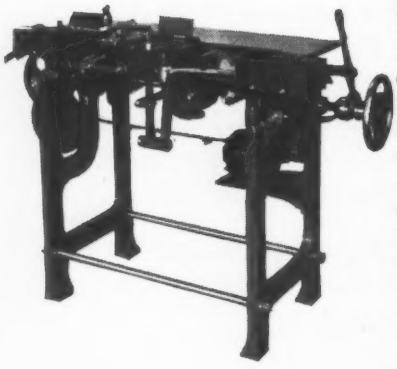
Packaging . . . in the Future

How long in the future is anyone's guess but we hope it will not be too long before the War is Won and restrictions lifted to permit these machines to be built again for you.

Plans can now be made, however, and the details worked out to permit delivery as soon as possible in the Post-War period. We will be pleased to work out your problems with you. Send us a sample of each size carton you desire to handle to enable us to recommend machines to meet requirements.



This PETERS JUNIOR CARTON FORMING AND LINING MACHINE sets up 30–40 "Peters Style" cartons per minute, requiring one operator. After the cartons are set up, they drop onto the conveyor belt where they are carried to be filled. Can be made adjustable to handle several carton sizes.



This PETERS JUNIOR CARTON FOLDING AND CLOSING MACHINE automatically closes 30–40 cartons per minute, requiring no operator. Cartons enter this machine on conveyor belt as open, filled cartons and leave machine completely closed, ready to be wrapped or packed for shipment. Can also be made adjustable to handle several carton sizes.

PETERS MACHINERY COMPANY
GENERAL OFFICE AND FACTORY
4700 RAVENSWOOD AVENUE, CHICAGO, ILL.

White over the upper half of the gondola and black over the lower half effects an average, comfortable temperature. Learn more from our leaflet . . . .

SOME FACTS ABOUT COLOR AND HEAT REFLECTION

INDIVIDUAL _____

COMPANY _____

ADDRESS _____

EAGLE PRINTING INK COMPANY
DIVISION GENERAL PRINTING INK CORPORATION
100 SIXTH AVENUE, NEW YORK 13, N. Y.
CHICAGO CAMBRIDGE JERSEY CITY
BALTIMORE TORONTO

CONSULTANT

on Container and Materials Handling Problems

This well-known firm of package-engineering consultants announces the return from "active duty" of C. S. Macnair. Mr. Macnair brings an unusual background of peacetime success and wartime experience as:

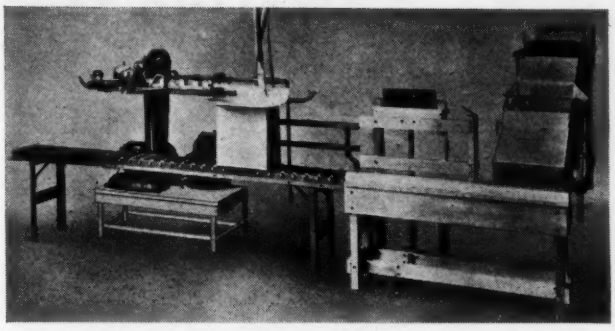
- 1. Officer-in-Charge, Subsistence Packaging Development Program, Navy Department.
- 2. Officer-in-Charge, South Pacific Packaging Survey and Motion Picture.
- 3. Officer-in-Charge Packaging, Packing, and Containers Section, Naval Supply Depot, New Orleans, and the Damaged Shipment Laboratory for the study of container failure.

Write or phone:

C. S. MACNAIR & ASSOCIATES
Established 1929
228 N. LaSalle St. Chicago, Illinois

ROTARY HEAT-SEALER GIVES SPEED MARGIN

to ammunition packaging lines

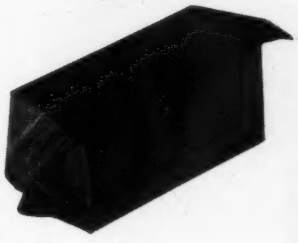


Ammunition is packaged faster in heat-sealed packages when the AMSCO HI-SPEED ROTARY HEAT SEALER is the machine used. Package shown holds 100 rounds of .30 caliber cartridges.

Now operating in many ordnance plants throughout the country, the AMSCO machine gives an extra margin of speed, converting former slow operation and bottleneck to the fastest part of the production line.

Engineering Details: 450 linear inches of perfect moistureproof heat-seal per minute—faster than other operations on packaging lines; easy operation reduces operator fatigue; air extraction from package before sealing helps avoid oxidation. Maximum production with a minimum of space and labor.

Our engineers will be glad to give you complete details.



AMSCO

Machines Heat-Seal

explosives
sulfa drugs
plaster bandages
first-aid kits
emergency field rations C, J, D, K
fruit bars
lemon extract
bouillon
cocoa
salt and sugar
life boat rations
tank and truck parts
dehydrated soup
batteries
teletype ribbons
tobacco
blood plasma
photographic film and supplies
rifle and machine gun parts
rivets and small assemblies

AMSCO PACKAGING MACHINERY, Inc.
31-31 Forty-Eighth Ave. Stillwell 4-4840 **Long Island City, N.Y.**

---

it's a sales winner too*

We are proud to have contributed to the phenomenal success of the John Hudson Moore Inc., SPORTSMAN series of men's toiletries.

The rich coloring of hard oil enamels was enhanced by the novel idea of printing on both sides of the container, revealing the background through the contents of the bottle and retaining all of the character of the original oil paintings.

This design was printed in eleven colors by:

Specialist in "On the Package" Printing
CREATIVE PRINTMAKERS GROUP
14 W. 17 St., New York 11, N.Y. CHelsea 3-6803-4-5

* WINNER OF MAJOR AWARD IN THE 1942 ALL-AMERICAN PACKAGING COMPETITION

"Red Streak" SEALING TAPE to the RESCUE

In "Red Streak" Sealing Tapes you find a combination of good paper, good glue and plenty of it, that will rescue your shipments from the fate of rough handling.

Ask for details, *samples, prices.*

BROWN-BRIDGE MILLS, Inc., Troy, Ohio

This is a Funny Ad

We don't want you to rush out and order a new Clipper-Heat Seal Cellophane Bag-Making Machine right now...

However, we may be able to help you with proper priority...

The new improved Clipper Heat Seal Cellophane Bag-Making Machine is really something...

We have been busy working for Uncle Sam but we have also been taking care of our old customers...

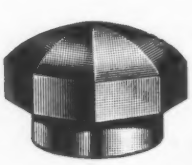
FOR POSTWAR PLANNING

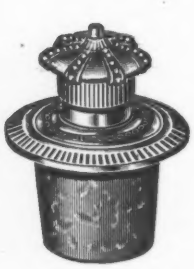
The time is...NOW. Get in touch with us on any plans you have which include the use of a Clipper Heat Seal Cellophane Bag-Making Machine.

THE CLIPPER IS THE BEST YOU KNOW

MOHAN CONTAINERS COMPANY
1107 East Eighth Street
Los Angeles 21, California

SPECIALISTS
in the manufacture of
CAN & BOTTLE CLOSURES





LET us quote you on your requirements. Hundreds of dies and molds available for Essential Oil Cans, Sprinkler Tops, Screw Caps, Lead and Tin Coated Spouts, Metal Specialties. 85 years' experience in meeting the needs of packagers. Call upon us for aid.

CONSOLIDATED FRUIT JAR COMPANY
NEW BRUNSWICK • NEW JERSEY

Laminated PAPERS AND BOARD

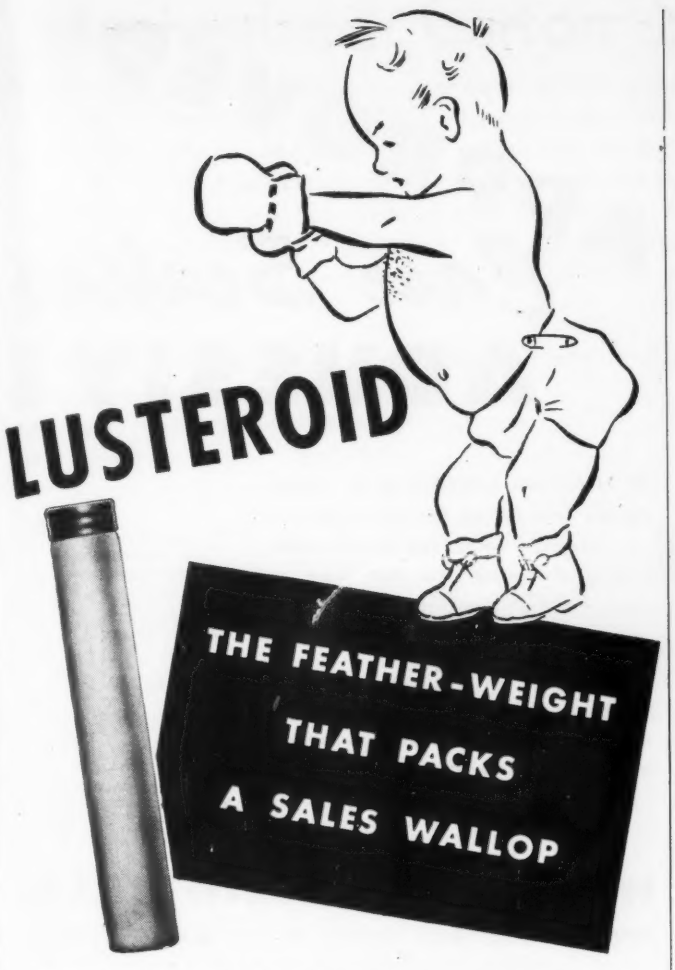
Men who know, suggest that laminations will be foremost in post-war developments.

Hudson Sharp has pioneered in building the best of laminating machines for foils, papers, boards and other cellulose products used in packaging and shipping.

Today we are building weapons to beat the Axis. Tomorrow we will again be able to build you machines to beat your paper converting problems.

Ask us about some of the new developments in machines for your post-war production problems.

HUDSON-SHARP
MACHINE CO • GREEN BAY • WIS



You couldn't ask for a better means of protecting and merchandising your product than LUSTEROID vials and tubes.

Here is a packaging paradox—a smart container that is unbelievably light in weight, yet so strong, rigid and unbreakable that it effectively safeguards your product right through to the consumer.

And talk about eye-and-buy appeal! LUSTEROID gives you all colors of the rainbow—clear or opaque. Your product fairly glistens in this "jewel package."

To these advantages, add the substantial savings in lower handling, packing and shipping costs and you have an unbeatable combination for post-war packaging.

LUSTEROID vials and tubes come in standard diameters from 1/4" to 1 1/4" and lengths up to 6". Cork, slip-on or screw-cap closures. Write for complete details.

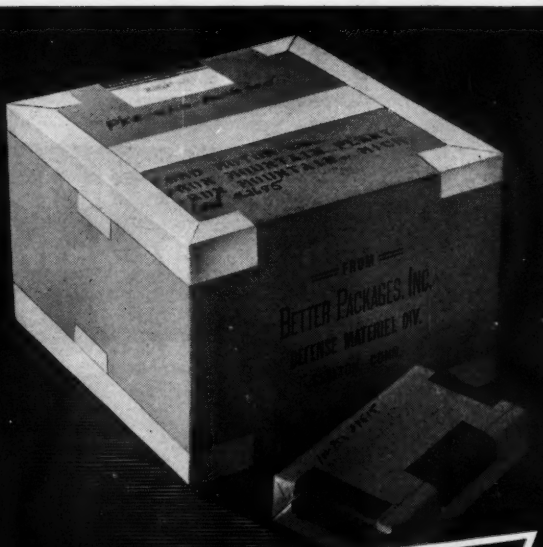
LUSTEROID CONTAINER CO., INC.

Formerly Lusteroid Division of Sillcocks-Miller Company

Office and Factory

10 W PARKER AVENUE, MAPLEWOOD, N. J.

MAILING ADDRESS SOUTH ORANGE, N. J.



Counterboy Sealed

COUNTERBOY SEALED, your war shipments are safely and quickly sealed to the exacting standards of government regulations.

COUNTERBOY EQUIPPED, your shipping department can continue today's high standards in sealing post war shipments.

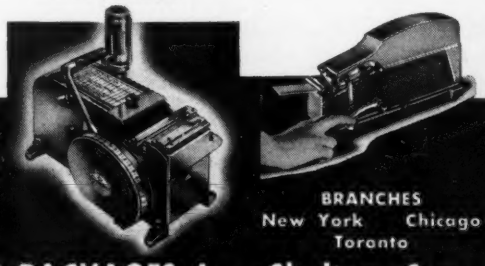
Save: Man Hours and Dollars

A COUNTERBOY Regional Distributor is as near as your phone. His rich experience in shipping problems is at your service. Your factory superintendent, purchasing or shipping executives may well benefit from his suggestions:—for speeding up production sealing;—new materials to give stronger shipments;—elimination of waste;—correction in safer methods of application,—improved work layouts etc. . . . resulting in thousand of man hours and dollars saved.

COUNTERBOY SEALING-TAPE MACHINES help your packers turn out uniform, neat, and safely sealed containers and packages. Their Automatic-Moistening Unit can be adjusted to condition any kind or grade of gummed tape for a quick, permanent seal.

Left, **TAPE SHOOTER SENIOR for sealing shipping containers**

Right, **SIMPLEX No. 10 for sealing inside packages**



SALES and SERVICE in Principal Cities

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New York Chicago
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BETTER PACKAGES, Inc., Shelton, Conn.

WAR PACKAGING

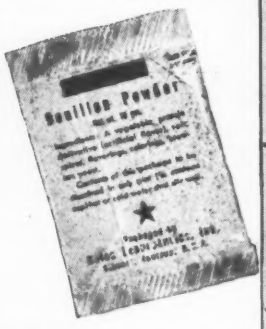
S&S Machines help fill War Contracts faster!

15 – 30 – 60 – 120 PER MINUTE!

S & S collaboration with leading packers has solved some of the toughest packaging problems of this war . . . has been a short-cut to speedy, economical packaging in packages that really protect.

DRIED EGGS

are one of many foods for Lend-Lease packaged on S & S packaging lines converted to this job with S & S assistance.



MILLIONS

of Army Ration "K" units are packaged on the S & S Transwrap . . . formed, filled and heat sealed in one continuous operation. A low cost, fully protective package that has many war-time uses.

FEEDING

our armies and the people of the United Nations and conquered countries require vast amounts of dehydrated foods. A good percentage of this is S & S wrapped.

FILLING, PACKAGING, WRAPPING MACHINES for Munitions, Lend-Lease, Foods, Drugs and essential Civilian Use . . . . .

Remember, if you have a problem in wartime packaging—*call in S & S!* Ask us about converting your present machines to wartime needs . . . Or, if your product has a high rating as war-essential, ask about the new S & S machine for its rapid, low-cost packaging. Use this service freely; there's no obligation!

STOKES & SMITH Co

PACKAGING MACHINERY — PAPER BOX MACHINERY

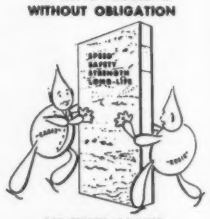
Frankford, Philadelphia 24, U. S. A.

APPROVED *Case Sealing* ADHESIVE

★ NATIONAL CASEIN'S Urea Formaldehyde Cold Setting Adhesive adheres to all types of V Board, and assures a permanent, waterproof seal that stands up under rain, hail, sleet—radical and sudden temperature changes—and rough handling.

Uniformly high in quality, readily available, backed by 30 years of service to Industry, NATIONAL CASEIN'S Urea Formaldehyde is *Laboratory Approved* as a water-resistant adhesive for sealing fibreboard boxes.

SUBMIT YOUR ADHESIVE PROBLEMS WITHOUT OBLIGATION



ALL TYPES CASEIN—HOT OR COLD RESIN GLUES

NATIONAL CASEIN SALES

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ORDNANCE PACKAGING

Keeping informed (up to the minute) on Government Specifications for packaging materials for Ordnance requirements, is a part of our business. This is necessary to serve customers who supply war materials—and to be able to advise even those who are not customers.

Please feel free to ask us for information on ORDNANCE PACKAGING REQUIREMENTS; also for specimens of wrapping and packaging materials specified by the Government.

Inquiries will have prompt, courteous, helpful attention.

Packaging Division

E. W. TWITCHELL INC.

776 Public Ledger Bldg., Philadelphia 6, Pa.

Specialists in Special Purpose Packagings.

Mechanized Carton Sealing at Small Cost

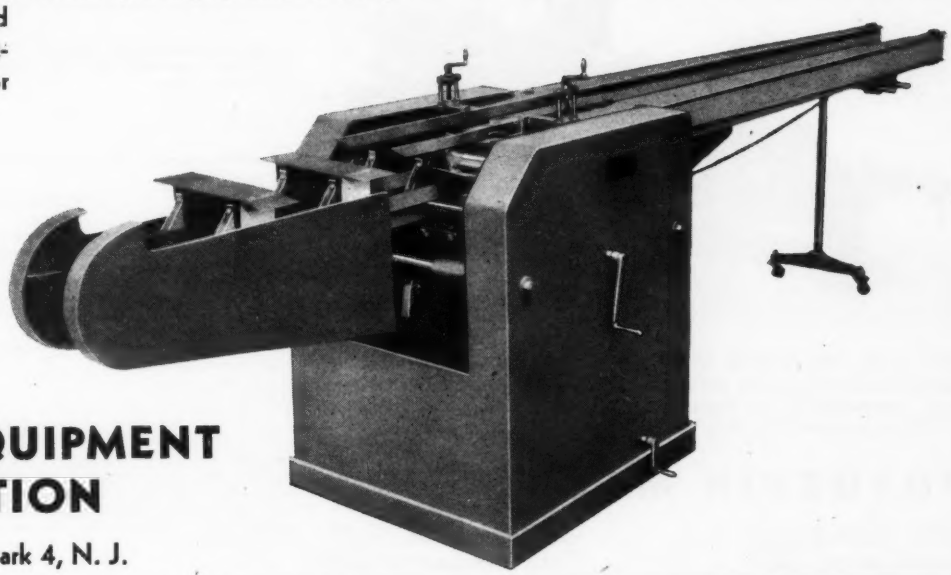
You no longer need complicated, expensive special equipment to seal cartons mechanically. A CECO Carton Sealer will quickly and inexpensively seal and deliver your cartons right to the shipping case. It is instantly adjustable, without special tools, for any carton depth from 1" to 12" and for speeds up to 60 per minute. Machines also available for cartons up to 65" deep. Machine seals and squares-up both ends of cartons simultaneously. It is mounted on casters, and is fully portable.

A CECO Carton Sealer will produce cleaner, stronger, better-looking packages at a saving which should pay back your low initial investment within a year. Send for details, now.

CECO

Adjustable

CARTON SEALER



CECO

CARTON SEALER
MODEL A-3901-12

CONTAINER EQUIPMENT CORPORATION

214 Riverside Ave., Newark 4, N. J.

THE *Unknown Package*

Victim of a faulty adhesive, the package that loses its label loses not only its personality but its identity as well. All the trouble of making its contents the best in the field—all the effort of creating a sound container and sending it through modern automatic production—all are lost when the glue fails.

Bingham glues stick on all types of packages under all sorts of circumstances and climates. Let our technicians recommend one of our adhesives for your purpose.

"Make Your Identity Stick"

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FOUNDED 1849

Every Kind of Roller and Adhesive

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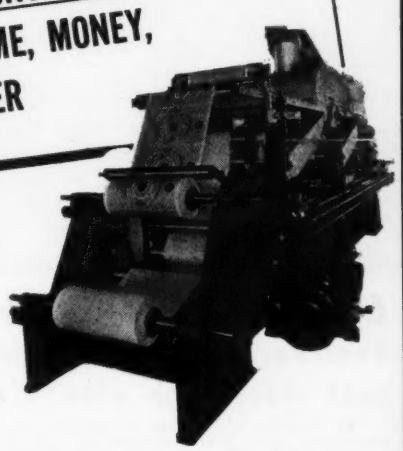
ROCHESTER 980 Hudson Ave.	NEWARK Brown St. & Lister Ave.	BALTIMORE 131 Colvin St.

HYROTO CONVERTING EQUIPMENT SAVES TIME, MONEY, MANPOWER



Model B-26 handles three colors on materials 6" to 26" wide.

HYROTO machines coat, print and laminate paper, cardboard, foil, kraft, cellophane, Pliofilm, tissues, fabric. Operating at high speeds, they apply cold or hot fluids as inks, lacquers, analines, waxes, adhesives and metallics to the above materials. For use by converters, printers, bag-makers, label and wrap producers. Available in complete range of sizes. Special machines designed.

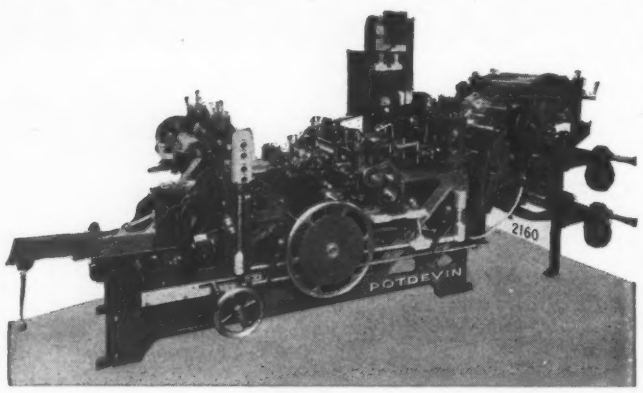
ROTOGRAVURE ENGINEERING CO.

299 MARGINAL ST., EAST BOSTON 28, MASS.

POTDEVIN

CELLOPHANE BAG MACHINES

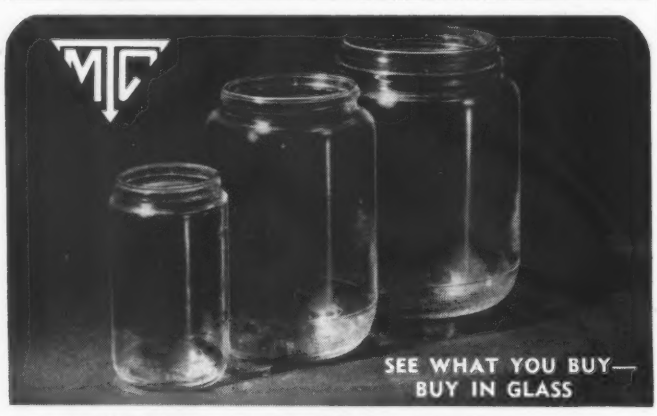
produce single-wall or "duplex" bags that resist side-splitting and top-splintering; bags with projecting lip—easily opened for filling. The new POTDEVIN pinch cut-off makes an elliptical or straight lip with smooth edges. Several other exclusive features and POTDEVIN bag machine patents make this possible.



PMC 2160. POTDEVIN Model 111-C adjustable range flat and square cellophane bag machine complete with electric eye-operated compensator for converting plain or pre-printed material. FLAT bag range 3" × 6½" to 10½" × 16¼".

POTDEVIN MACHINE CO.

1244—38th Street Brooklyn 18, N. Y.
Established 1893 Tel. Windsor 6-1700



60 YEARS of "KNOW HOW" enable Thatcher to produce glass containers that meet high standards . . . . . .

Six decades of wide experience in the manufacture of glass containers have given Thatcher the ability and mechanical skill to meet exacting requirements and unusual demands. If you have a glass problem . . . write to Thatcher.

THATCHER MANUFACTURING COMPANY, ELMIRA, N. Y.
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SALES OFFICES IN PRINCIPAL CITIES

Thatcher
QUALITY GLASS CONTAINERS

★ ★ BUY WAR BONDS ★ ★

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All classified advertisements payable in advance of publication. Rates: $5.00 up to sixty words; enclosed in border, $10.00 per inch. Publisher reserves the right to accept, reject or censor a classified copy.

LABEL DESIGNER WANTED

Large aggressive organization wants Label and Package Designer, man or woman, to head department. Must be original, creative and have executive ability. A fine opportunity for the person who can qualify. State age, draft status, experience and salary. Box 229, Modern Packaging.

FOR SALE—Patent #2331035, PACKAGE JACKS—Device for positioning articles in package for easy removal. D. J. Martin, 434 N. Francis St., Madison, Wis.

PACKETING ENGINEER

Major distributor of consumers' merchandise has opening for man with experience in prepacking manufacturers' merchandise for distribution to retailers and consumers. Extensive postwar activities make this real opportunity for right man. Write giving experience, age, draft status, salary expected. Replies confidential. Box 228, Modern Packaging.

FOR SALE

One (1) Johnson Automatic Sealer Company Adjustable Wrapping and Sealing Machine (Machine #1379). Fully automatic with heat control unit, Allen-Bradley Motor Control unit. Powered by ¼ H.P. motor, 220 volts, 60 cycle, 2 phase, alternating current connections. Good condition. Priced for immediate sale. Write Box 230, Modern Packaging.

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Package designer with modern creative ideas. Knowledge of production. Excellent postwar possibilities. State age, experience, draft status, and salary expected. Reply Box 231, Modern Packaging.

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Do you want to head a small but active Art Department that produces a variety of roughs and buys most finished work outside? We have art and designing problems in point-of-sale materials, packages, direct mail and advertising layouts in all media. Comfortable, friendly people to work with. Permanent berth for right man (draft exempt) or woman. Location Chicago. Interview confidential. Reply Box 232, Modern Packaging.

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MODERN PACKAGING

BRESKIN PUBLISHING CORPORATION

122 East 42nd St. **New York 17, N. Y.**

An Announcement to the Packaging Industry

ANOTHER STEP TO AID IN

"Serving Industry... Which Serves Mankind"

MONSANTO CHEMICAL COMPANY, producer of more than 300 basic chemical and plastics products, announces acquisition of I. F. Laucks, Inc., world's largest manufacturer of industrial glues.

Through this step, Monsanto rounds out a service to the packaging industry that now covers glues for plywood containers as well as Monsanto Plastics and Vuepak. Available now are these facilities:

I. F. Laucks, Inc., experience of more than two decades; PLUS the Laucks personnel, maintained intact to provide the individualized and specialized service for which Laucks is famous; PLUS the I. F. Laucks, Inc., plants in Seattle, Vancouver, B. C., and Los Angeles and other Laucks, Inc., interests elsewhere in the United States, Canada and overseas

...PLUS the six Monsanto research laboratories, including a central research laboratory—one of the largest in this country devoted exclusively to advance industrial research

...PLUS nineteen Monsanto manufacturing plants in the United States and additional plants in England, Wales, Canada, Australia and Brazil—producing a range of commodities extending from heavy chemicals through fine pharmaceuticals and food chemicals to one of the widest ranges of plastics in existence

...PLUS facilities to supply raw materials for existing and potential packaging applications that are possible only in an integrated operation such as that now afforded by the union of Laucks and Monsanto. MONSANTO CHEMICAL COMPANY, ST. LOUIS 4.

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CHEMICALS AND PLASTICS
SERVING INDUSTRY...WHICH SERVES MANKIND

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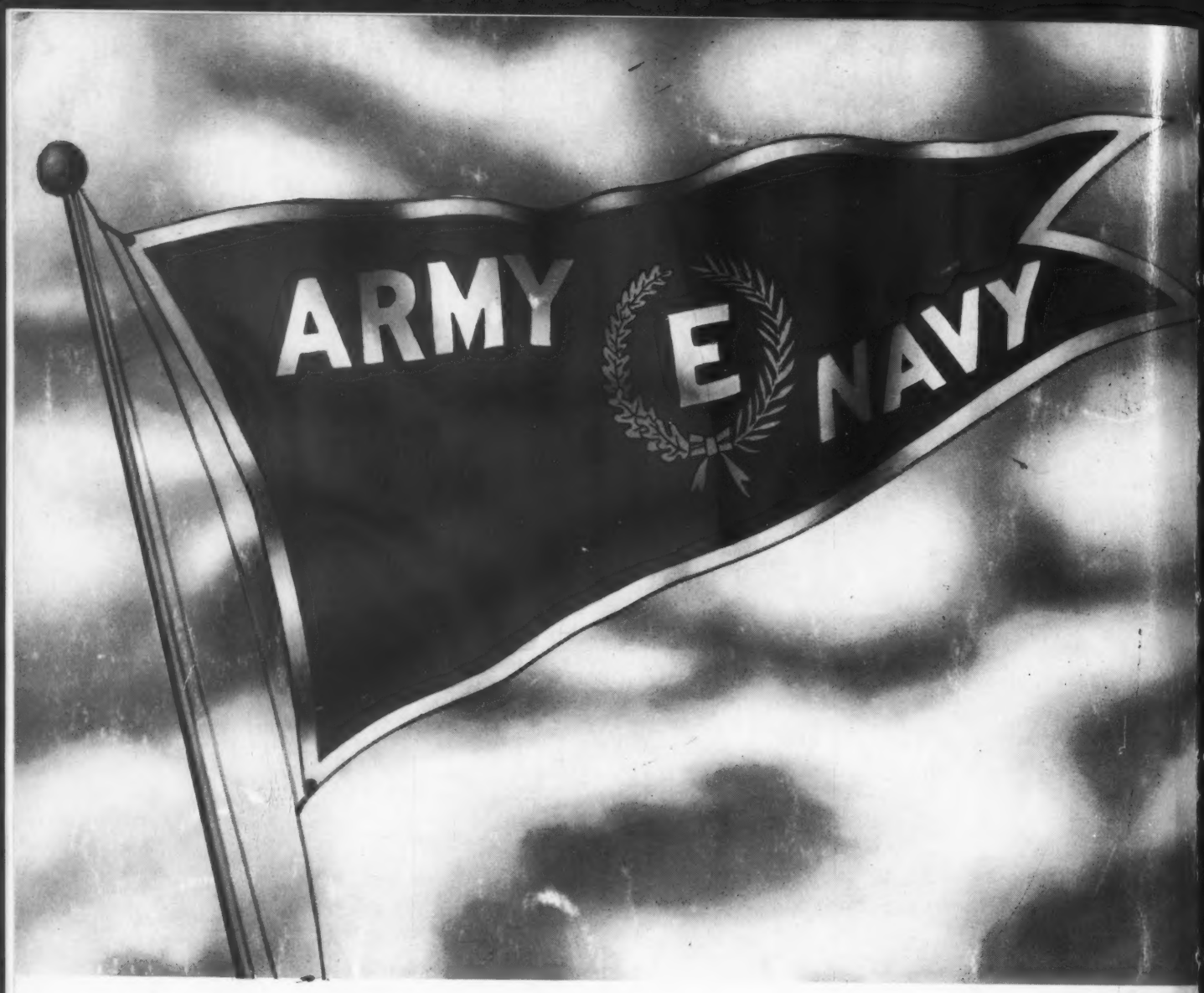
We all like to dwell upon the past's triumphs; its good performances. And rightly so!

BALL BROTHERS COMPANY is proud of its wartime service—maximum production of the best possible containers under wartime standardization.

We pay tribute to the past, but we are making plans for the future.

After wartime restrictions are no longer necessary and individuality in packaging is again the watchword, we will be ready to furnish finest quality glass containers in modern attractive designs.

BALL
BROTHERS COMPANY
General Offices
MUNCIE, INDIANA, U. S. A.



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